HVR-DR60

SERVICE MANUAL

Ver 1.1 2007.03
Revision History

How to use
Acrobat Reader

US Model
Canadian Model
AEP Model
Chinese Model
Japanese Model

Link

SPECIFICATIONS	BLOCK DIAGRAMS	PRINTED WIRING BOARDS
SERVICE NOTE	FRAME SCHEMATIC DIAGRAM	REPAIR PARTS LIST
DISASSEMBLY	SCHEMATIC DIAGRAMS	ADJUSTMENT

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

HDV HDV 1080i DVCAM™ i.LINK HARD DISK RECORDING UNIT

SONY®

HVR-DR60
9-852-146-12

Sony EMCS Co.

2007C0800-1
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Published by Kohda TEC

Self Diagnosis Supported model

SPECIFICATIONS

System

File system	FAT32	
Hard disk	60 GB	
	The capacity is the value when 1 GB equals 1 billion bytes.	
	The actual usable capacity may be slightly less because administrative files etc. are included.	
File format	HDV recording	MPEG-2TS (.m2t)
	DVCAM/DV recording	AVI-Type1 (.AVI)
		RAW DV (.DV)
Input signal	HDV recording/playback	Video: MPEG-2TS
		Audio: MPEG1 Audio Layer2 Stereo
	DVCAM/DV recording/playback	Video: DV embedded
		Audio: PCM digital (12/16 bit, 32k, 48k)
Recording/playback time	Approx. 270 minutes	

General

Power requirement	DC 7.2 V (battery pack)
	DC 8.4 V (AC adaptor)
Power consumption	2.7 W
Operating temperature	0 °C to 40 °C (32 °F to 104 °F)
Storage temperature	–20 °C to +60 °C (–4 °F to +140 °F)
Operating humidity	20 % (20 °C) to 90 % (35 °C) (no condensation)
Operating altitude	Maximum 3,000 m (9,843 feet)
Dimensions	Approx. 81 × 45 × 100 mm (w × h × d) (3 1/4 × 1 3/4 × 4 in.)
Mass	Approx. 230 g (8 oz.)
Input/output jack	i.LINK (IEEE1394 6-pin connector S400)
Included items	i.LINK cable (6-pin – 4-pin) 70 cm (1)
	Operating instructions (1)
	Guide to supported models and their functions (1)
	CD-ROM manual (1)
	Shoe adaptor (1)
Optional accessories	AC adaptor/charger AC-VQ1050B
	Battery pack NP-F570/F770/F970

Design and specifications are subject to change without notice.

自己診断搭載機種

概略仕様

システム

ファイルシステム	FAT32	
ハードディスク	60GB 容量は、 1GBを 10億バイトで計算した場合の数値です。 また管理用ファイルなどを含むため、実際使用できる容量は若干減少する場合があります。	
ファイルフォーマット	HDV 記録時	MPEG-2TS (.m2 t)
	DVCAM/DV記録時	AVI-Type1 (.AVI) RAW DV (.DV)
対応入力信号	HDV記録再生時	ビデオ： MPEG-2TS オーディオ： MPEG1 Audio Layer2 Stereo
	DVCAM/DV記録再生時	ビデオ： DV embedded オーディオ： PCMデジタル (12/16 bit,32k,48k)
録画/再生時間	約 270分	

電源部、その他

電源電圧	バッテリー端子入力 7.2V DC端子入力 8.4V
消費電力	2.7 W
動作温度	0 °C~40 °C
保存温度	–20 °C~+60 °C
動作湿度	20 % (20 °C) ~90 (35 °C) % (結露がないこと)
動作高度	海抜 3,000 m以下
外形寸法	約 81 × 45 × 100 mm (幅／高さ／奥行き)
本体質量	約 230 g
入力端子	i.LINK (IEEE1394 6 ピンコネクター s400)
付属品	i.LINKケーブル (6ピン – 4ピン) 約 70 cm (1) 保証書 (1) 取扱説明書 (1) 対応機種機能ガイド (1) CD-ROM マニュアル (1) シューアダプター (1)
別売アクセサリー	AC アダプター /チャージャー AC-VQ1050B バッテリーパック NP-F570/F770/F970

本機の仕様および外観は、改良のため予告なく変更することがありますが、ご了承ください。

CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270˚C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

Unleaded solder

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

: LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350°C.
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

注意
電池の交換は，正しく行わないと破裂する恐れがあります。電池を交換する場合には必ず同じ型名の電池又は同等品と交換してください。

サービス，点検時には次のことにご注意下さい。

1. **注意事項をお守りください。**
   サービスのとき特に注意を要する個所については，キャビネット，シャーシ，部品などにラベルや捺印で注意事項を表示しています。これらの注意書き及び取扱説明書等の注意事項を必ずお守り下さい。
2. **指定部品のご使用を**
   セットの部品は難燃性や耐電圧など安全上の特性を持ったものとなっています。従って交換部品は，使用されていたものと同じ特性の部品を使用して下さい。特に回路図，部品表に⚠印で指定されている安全上重要な部品は必ず指定のものをご使用下さい。
3. **部品の取付けや配線の引きまわしはもとどおりに**
   安全上，チューブやテープなどの絶縁材料を使用したり，プリント基板から浮かして取付けた部品があります。また内部配線は引きまわしやクランパによって発熱部品や高圧部品に接近しないよう配慮されていますので，これらは必ずもとどおりにして下さい。
4. **サービス後は安全点検を**
   サービスのために取外したネジ，部品，配線がもとどおりになっているか，またサービスした個所の周辺を劣化させてしまったところがないかなどを点検し，安全性が確保されていることを確認して下さい。
5. **チップ部品交換時の注意**
   - 取外した部品は再使用しないで下さい。
   - タンタルコンデンサのマイナス側は熱に弱いため交換時は注意して下さい。
6. **フレキシブルプリント基板の取扱いについて**
   - コテ先温度を270℃前後にして行って下さい。
   - 同一パターンに何度もコテ先を当てないで下さい。（３回以内）
   - パターンに力が加わらないよう注意して下さい。
7. **無鉛半田について**
   無鉛半田を使用している基板には，無鉛（Lead Free）を意味するレッドフリーマークがプリントされています。
   （注意：基板サイズによっては，無鉛半田を使用していてもレッドフリーマークがプリントされていないものがあります）
   ：レッドフリーマーク
   無鉛半田には，以下の特性があります。
   - 融点が従来の半田よりも約40℃高い。
     従来の半田こてをそのまま使用することは可能ですが，少し長めにこてを当てる必要があります。
     温度調節機能のついた半田こてを使用する場合，約350℃に設定して下さい。
     注意：半田こてを長く当てすぎると，基板のパターン（銅箔）がはがれてしまうことがありますので，注意して下さい。
   - 粘性が強い
     従来の半田よりも粘性が強いため，IC端子などが半田ブリッジしないように注意して下さい。
   - 従来の半田と混ぜて使用可能
     無鉛半田には無鉛半田を追加するのが最適ですが，従来の半田を追加しても構いません。

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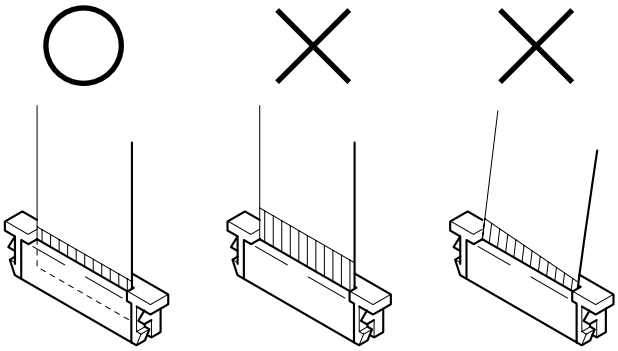
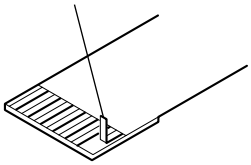
1-1. SERVICE NOTE

1. NOTE FOR REPAIR

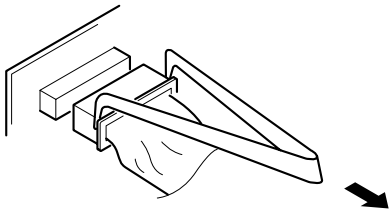
Make sure that the flat cable and flexible board are not cracked of bent at the terminal.
Do not insert the cable insufficiently nor crookedly.



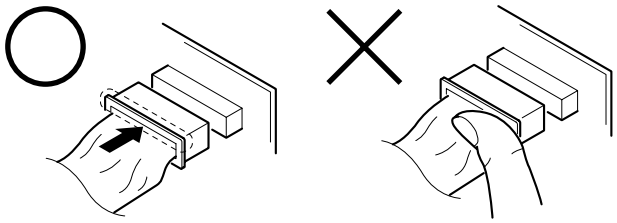
Cut and remove the part of gilt which comes off at the point. (Take care that there are some pieces of gilt left inside)



When remove a connector, don't pull at wire of connector.
Be in danger of the snapping of a wire.



When installing a connector, don't press down at wire of connector.
Be in danger of the snapping of a wire.



2. POWER SUPPLY DURING REPAIRS

In this unit, about 10 seconds after power is supplied to the battery terminal using the regulated power supply (8.4V), the power is shut off so that the unit cannot operate.
This following method are available to prevent this.Take note of which to use during repairs.

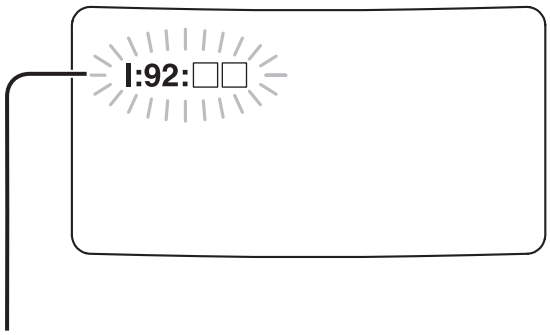
Method 1.

Use the AC power adaptor.

ENGLISH JAPANESE

1-2. DESCRIPTION ON SELF-DIAGNOSIS DISPLAY

When an error occurs the following warning indicators may appear on the LCD screen.
And this unit is sent error code to camera.



Self-diagnosis display : X:Yy:ZZ

X	
i.LINK	I:
ATA	A:
Power Supply	P:
Button	K:
MPEG/AVI	M:
Other	X:
Fatal Error	F:

Y	
Main	1y
Sub	2y
Other	9y

y	
Physical	Y1
Logical	Y2
Other	Y9

ZZ
When error is defined in the devise, the error code of it is displayed.

X	Yy	ZZ	Description
I	12	ZZ	Returnable i.LINK-related error (The code that is corresponded to ZZ, is representative for status of i.LINK..)
A	12	ZZ	Returnable HDD-related error (The code that is corresponded to ZZ, is representative for error of ATA..)
P	12	ZZ	Error is occurred when the power supply -related command is sent from Main controller to Sub controller. (ZZ is given value)
	21	01	In case that error has been occurred with power supply controller of each device using by Sub controller.
		02	Cannot enter into sleep mode
M	12	ZZ	Stream processor abnormally (ZZ is given value. Such as, when AVI format is differed, ZZ becomes 01 etc.)
F	11	01	HDD failure
		02	i.LINK error
	12	ZZ	In case that error has been detected into file system etc.
	21	ZZ	In case that cannot communicates to Sub controller
	22	ZZ	In case that cannot controls the others device from Sub controller
	91	ZZ	Others, fatal error related with hardware
	92	ZZ	Others, fatal error related with software
X	99	ZZ	In case that for DV SIGNAL PROCESSOR (IC501), error code etc. of firmware is to displaying.

Principal Eroor Code

X	Yy	ZZ	Countermeasure	Description
A	12	01	Turn the unit back on again.	Overflow of receiving buffer.
		02	Turn the unit back on again.	FAT error.
	90	01	Store the unit at room temperature for a little	Caution the unit to low temperature.
		11	Store the unit at room temperature for a little	Caution the unit to high temperature.
	91	01	Turn the unit back on again.	Detect the communication error with selecting the computer mode.
F	11	01	Turn the unit back on again.	HDD has failed, or communication error between HDD.
	12	01	Format the HDD	HDD format error.
	20	01	Turn the unit back on again.	Unit failed PHY (Physical Layer) reset.
	29	00	There is partucularly no solution. (In this case, perform the firmware updates automatically.)	No writing into the sub controller firmware.

Following is error code that has been described to instructoin manual.

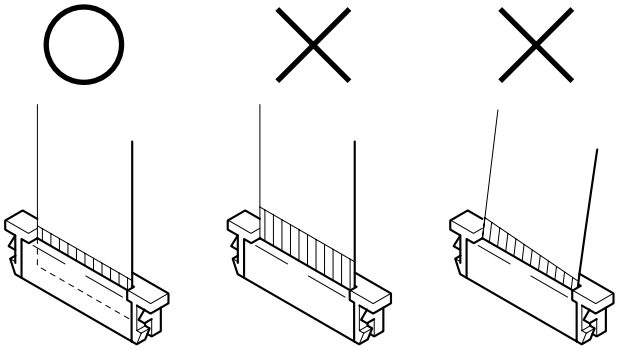
Display Code	Countermeasure	Cause
A:11:☐☐	Turn this unit off and then back on.	Cannot read or write to the HDD.
A:19:☐☐	Turn this unit off and then back on.	Internal error has occurred.
I:11:☐☐	Turn this unit off and then back on.	i.LINK communication error has occurred.
I:92:☐☐	Turn this unit off and then back on.	Internal error has occurred.
M:11:☐☐	Turn this unit off and then back on.	The recorded image cannot be manipulated.
X:☐☐:☐☐	Turn this unit off and then back on.	Internal error has occurred.
F:12:☐☐	Format this unit by selecting DELETE and then FORMAT. If you still cannot operate the unit, contact Sony Customer Service.	There is a conflict in the HDD logic structure.
F:29:☐☐	Contact Sony Customer Service.	There is an internal malfunction.

1. SERVICE NOTE

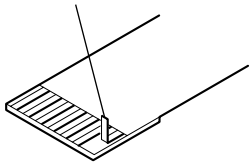
1-1. サービスノート

1.　修理時の注意

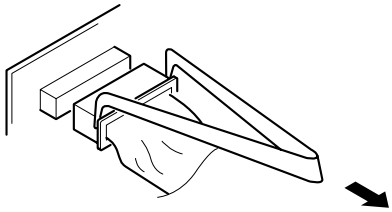
本フラットケーブルおよびフレキシブル基板の端子面に欠け，折れ等がないことを確認する。
また，コネクタへの接続は，差し込み不足や斜め差しにならないように注意する。



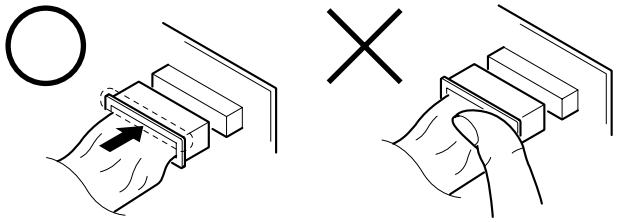
先端の剥がれたメッキ部はカットして除去する。
（メッキ破片がコネクタ内に残っている場合もあるので注意）



コネクタを取り外す時に，線材部（極細）を持って引っ張ると断線する恐れがありますので，絶対に線材部（極細）を持って引っ張れないで下さい。



線材部（極細）を押さえながらコネクタを差し込むと，線材部（極細）が断線する恐れがありますので，絶対に線材部（極細）には負担をかけないで下さい。



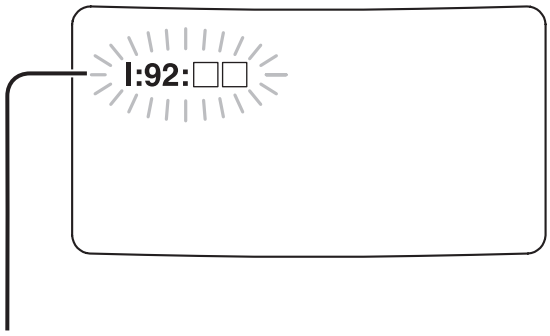
2.　修理／調整時の電源供給について

本機では，安定化電源（8.4Vdc）からバッテリー端子に電源を供給した場合，約10秒後にシャットオフし，動作しなくなります。
これを避けるため，下記のいずれかの方法を用いてください。

方法1：
ACアダプタを使用する。

1-2. 自己診断表示について

エラーが発生した場合は，エラー内容に合わせて液晶表示画面にエラーコードが表示されます。
また，カメラ側にエラーコードが送信されます。



自己診断表示：X:Yy:ZZ

X	
i.LINK	I:
ATA	A:
電源	P:
ボタン	K:
MPEG/AVI	M:
Other	X:
致命的なエラー	F:

Y	
Main	1y
Sub	2y
Other	9y

y	
Physical	Y1
Logical	Y2
Other	Y9

ZZ
デバイスにエラーの規定があれば，そのコードを表示する。

X	Yy	ZZ	エラー内容
I	12	ZZ	復帰可能なi.LINK関連のエラー（ZZにあたる部分のコードは、i.LINKのステータスを返す）。
A	12	ZZ	復帰可能なHDD関連エラー（ZZにあたる部分のコードは、ATAのエラーを返す）。
	12	ZZ	MainコントローラーからSubコントローラーに電源関連の命令を送信時に発生したエラー（ZZは任意の値）。
	21	01	Subコントローラーから各デバイスの電源制御時に発生したエラー。
		02	スリープモードに入れなかったとき。
M	12	ZZ	ストリームプロセッサ-のエラー（ZZは任意の値。例えば、AVIのフォーマットが違うときは01等。）。
F	11	01	HDD故障。HDD故障。
		02	i.LINKエラー。
	12	ZZ	ファイルシステム等のエラー。
	21	ZZ	Subコントローラーと通信できないとき。
	22	ZZ	Subコントローラーから他のデバイスを制御できないとき。
	91	ZZ	その他ハード関連の致命的なエラー。
	92	ZZ	その他ソフト関連の致命的エラー。
X	99	ZZ	DV SIGNAL PROCESSOR (IC501) のファームウェアのエラーコード等を表示させたいとき。

主なエラーコード

X	Yy	ZZ	対処方法	原因
A	12	01	電源を再投入する。	受信バッファのオーバーフロー。
		02	電源を再投入する。	FATの異常。
	90	01	しばらく常温で保管する。	低温警告。
		11	しばらく常温で保管する。	高温警告。
	91	01	電源を再投入する。	コンピューターとの通信モード時にダウン検出。
F	11	01	電源を再投入する。	HDD故障，HDD間通信異常。
	12	01	HDDのフォーマットを行う。	HDDフォーマットエラー。
	20	01	電源を再投入する。	PHYのリセット失敗。
	29	00	特になし(ファームウェアの自動アップデートが行われる)。	Subコントローラーのファームウェアが書きこまれていない。

下記は取扱説明書に記載されているエラーコードです。

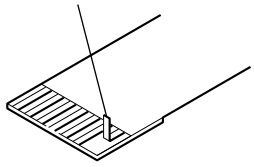
表示コード	対処方法	原因
A:11:□□	本機の電源を切り，再度電源を入れなおしてください。	HDDへの読み込み，または書き込みができませんでした。
A:19:□□	本機の電源を切り，再度電源を入れなおしてください。	内部エラーです。
I:11:□□	本機の電源を切り，再度電源を入れなおしてください。	i.LINKの通信エラーです。
I:92:□□	本機の電源を切り，再度電源を入れなおしてください。	内部エラーです。
M:11:□□	本機の電源を切り，再度電源を入れなおしてください。	記録動画を正しく処理できませんでした。
X:□□:□□	本機の電源を切り，再度電源を入れなおしてください。	内部エラーです。
F:12:□□	メニュー設定画面で「DELETE」を選び，「FORMAT」を選んで本機の初期化を行ってください。 初期化を行ってもだめな場合，コールセンターにお問い合わせください。	HDD内の論理構造に矛盾を見つけました。
F:29:□□	コールセンターにお問い合わせください。	内部装置に異常があります。

2. DISASSEMBLY

NOTE FOR REPAIR

- Make sure that the flat cable and flexible board are not cracked of bent at the terminal.
  Do not insert the cable insufficiently nor crookedly.
- When remove a connector, dont' pull at wire of connector. It is possible that a wire is snapped.
- When installing a connector, dont' press down at wire of connector.
  It is possible that a wire is snapped.

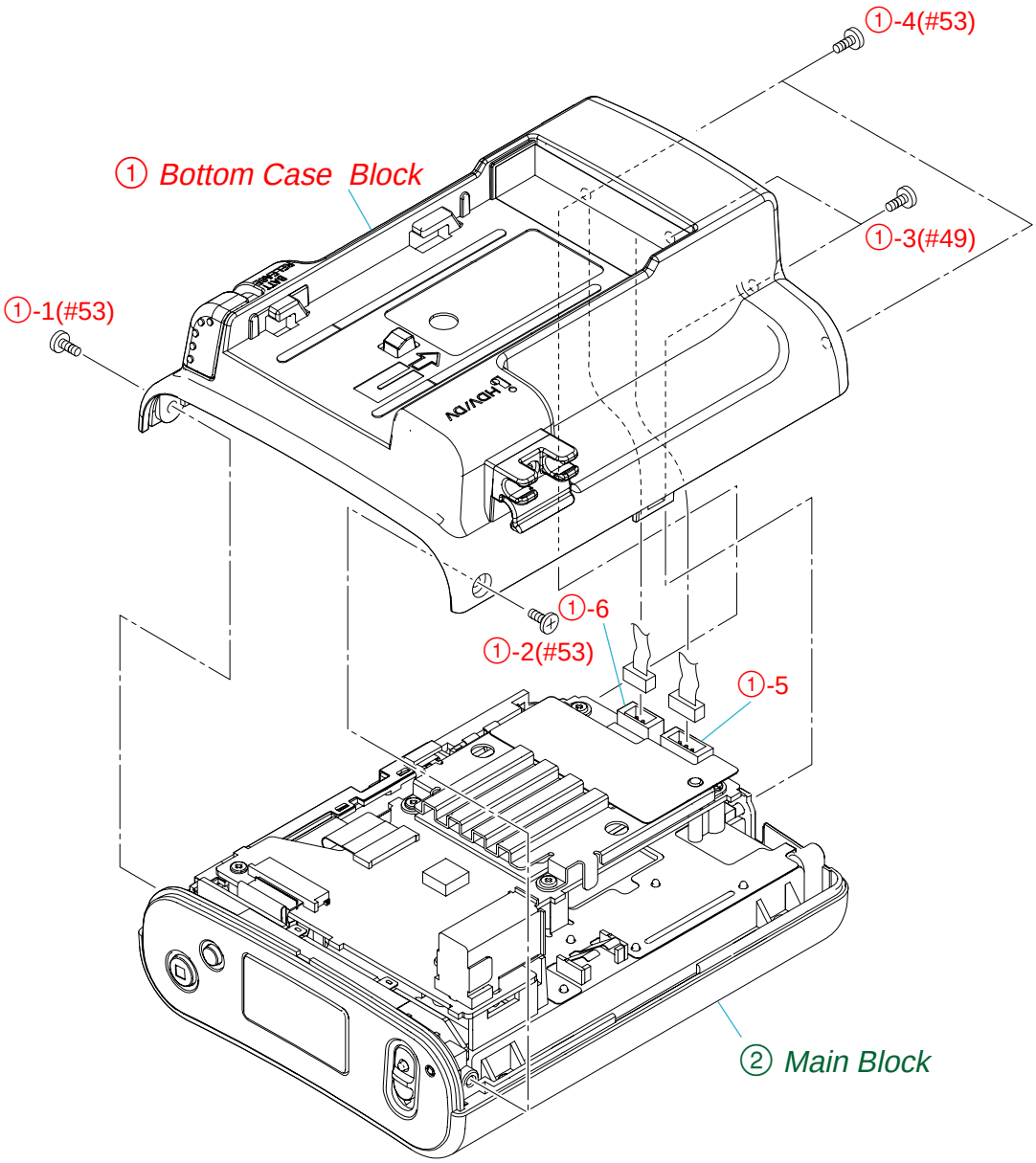
Cut and remove the part of gilt which comes off at the point. (Be careful or some pieces of gilt may be left inside)



2-1. DISASSEMBLY

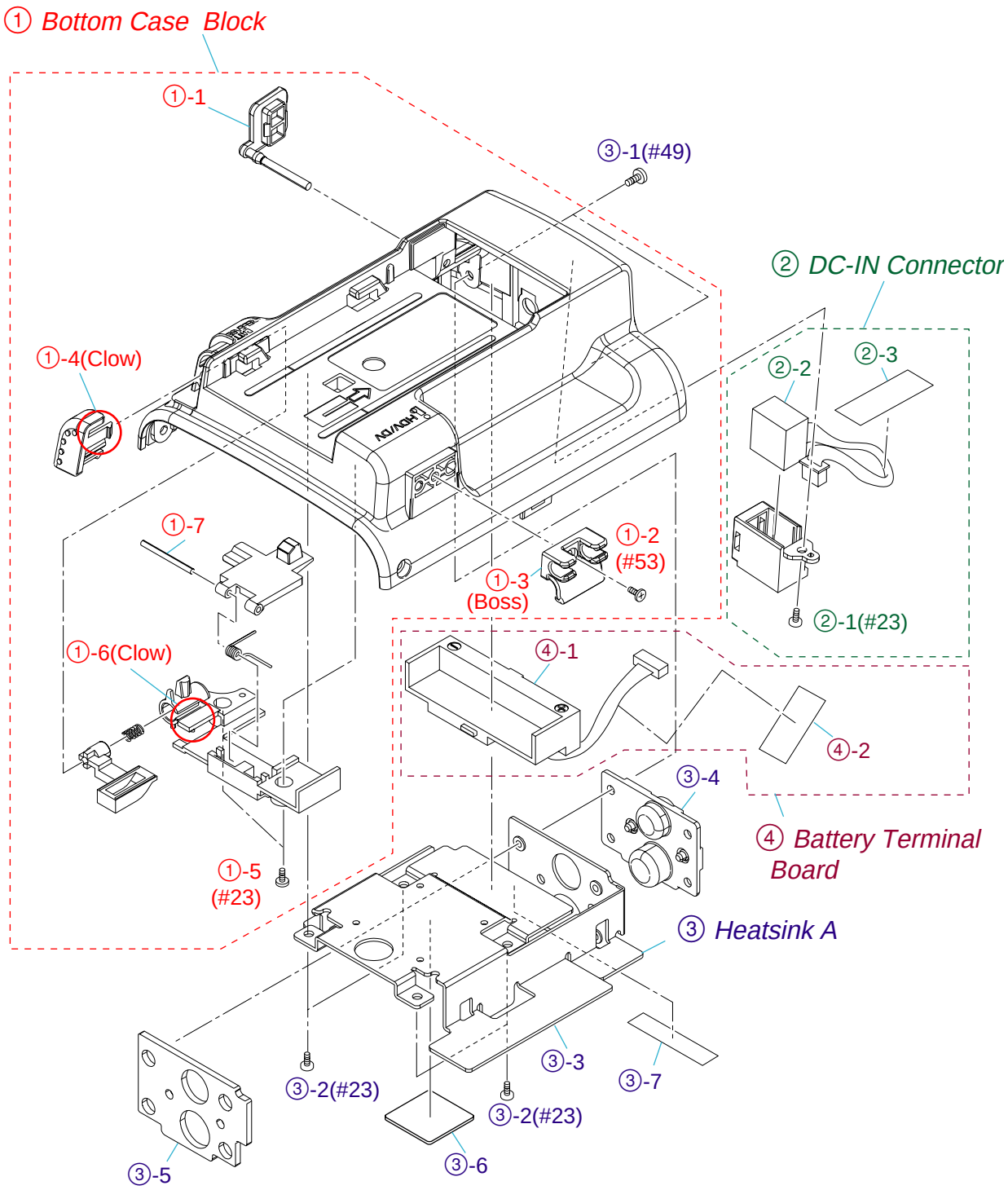
EXPLODED VIEW HARDWARE LIST

2-1-1. OVERALL ASSEMBLY



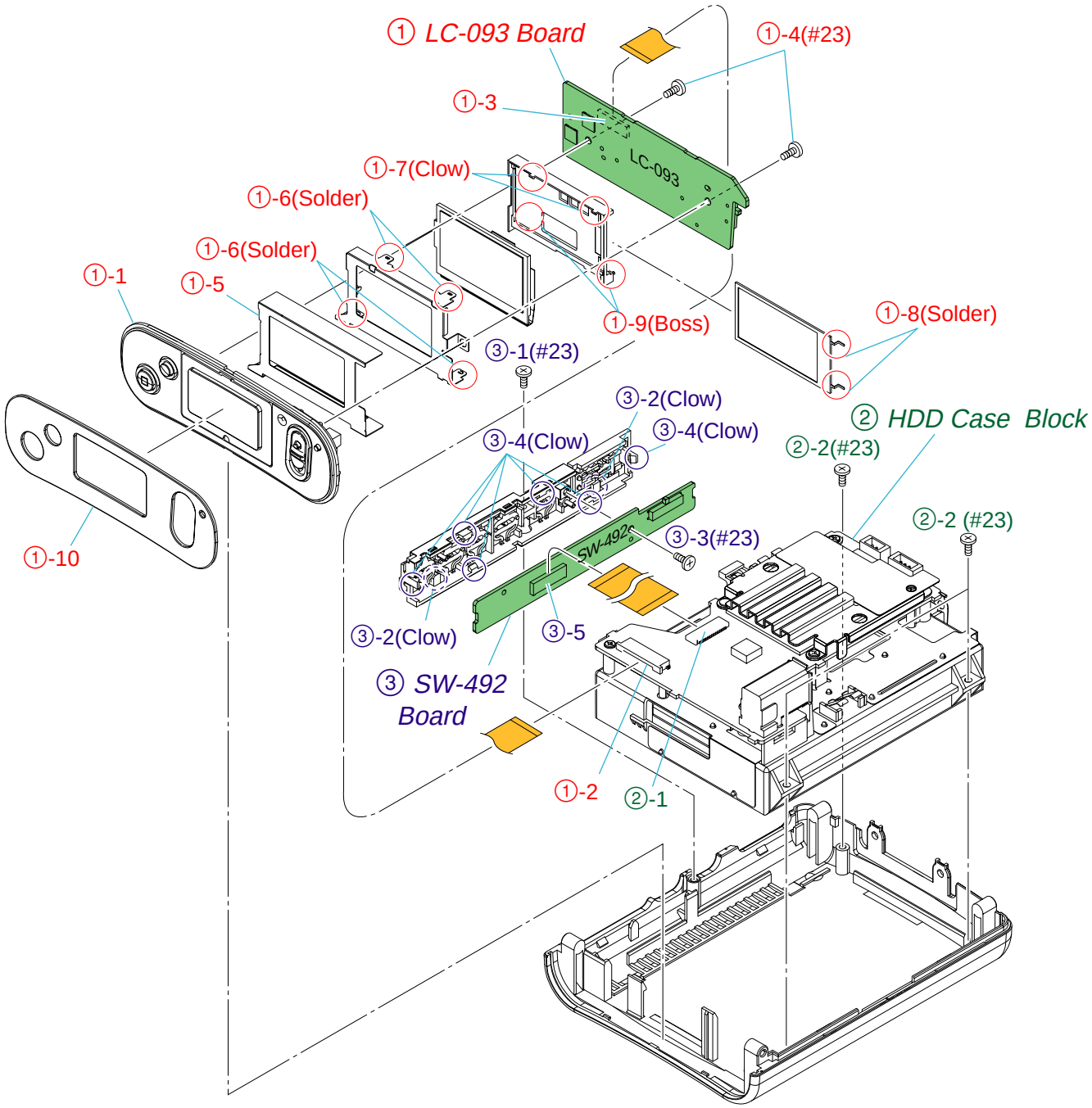
2-1-2. BOTTOM CASE ASSEMBLY

EXPLODED VIEW HARDWARE LIST



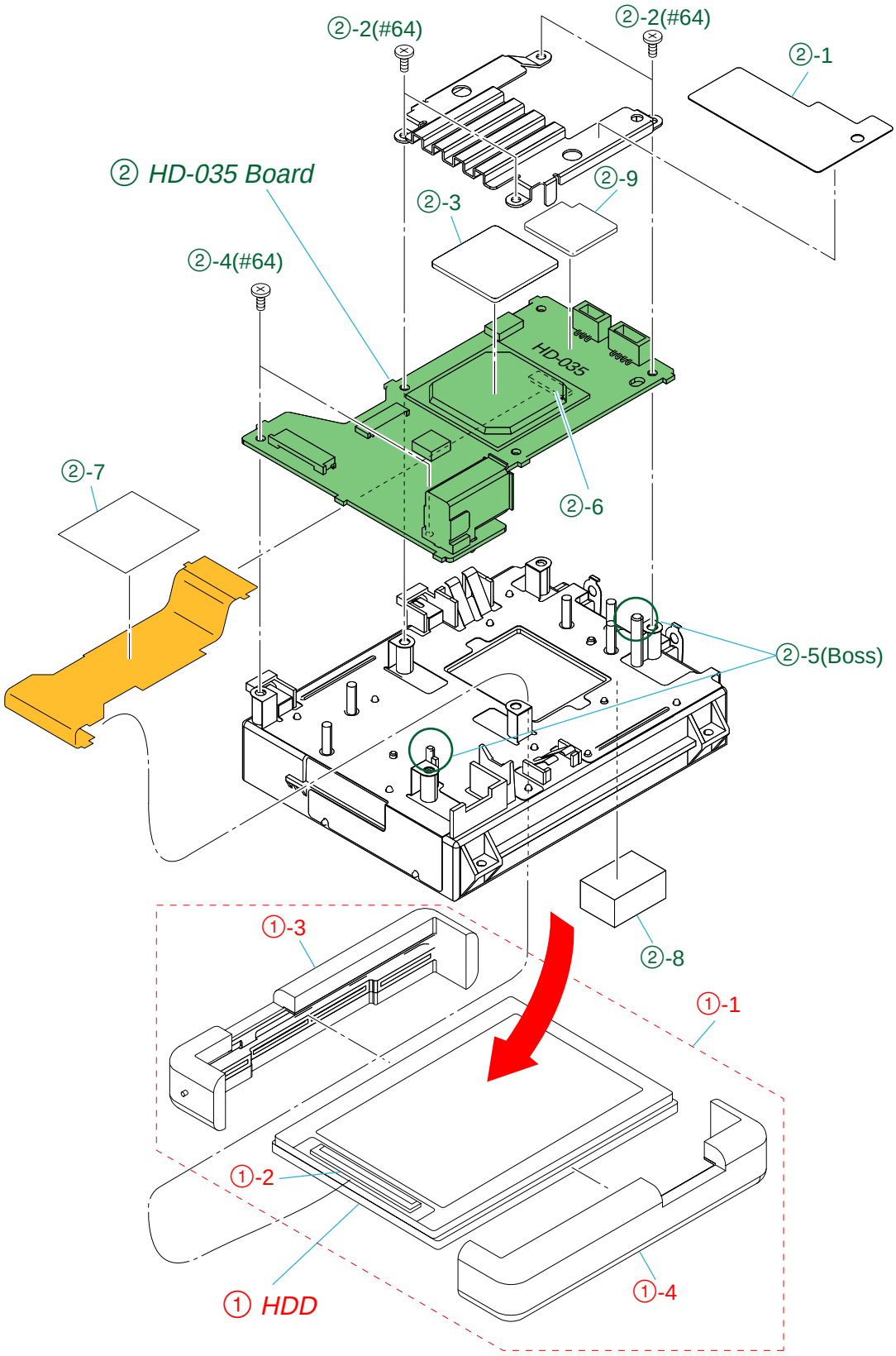
2-1-3. MAIN BLOCK

EXPLODED VIEW HARDWARE LIST



2-1-4. HDD CASE BLOCK

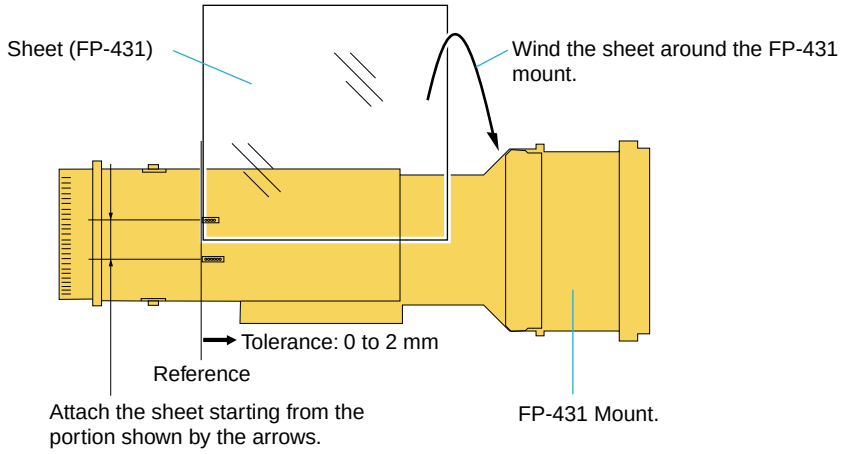
EXPLODED VIEW HARDWARE LIST



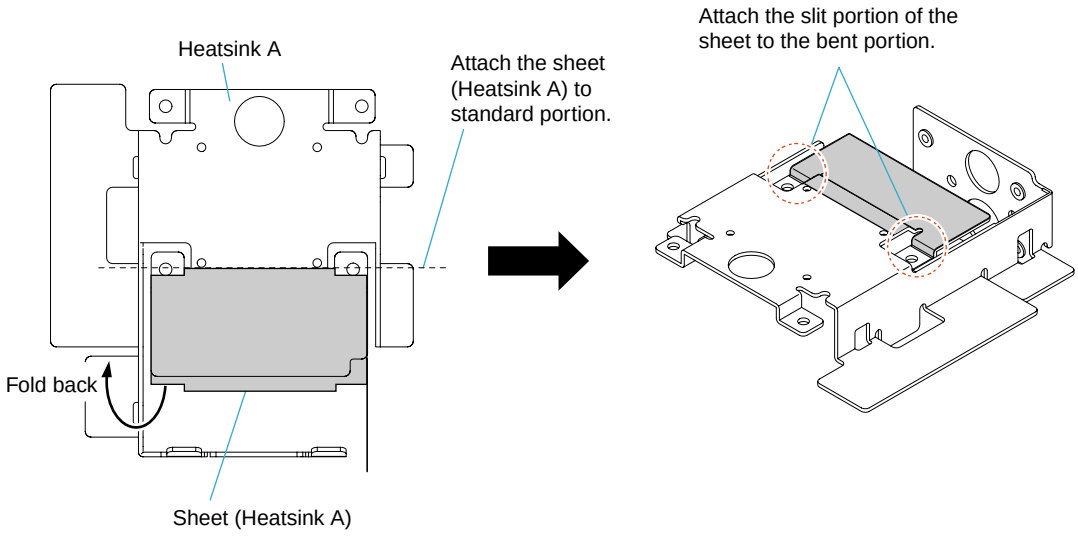
HELP

Sheet attachment positions and procedures of processing the flexible boards/harnesses are shown.

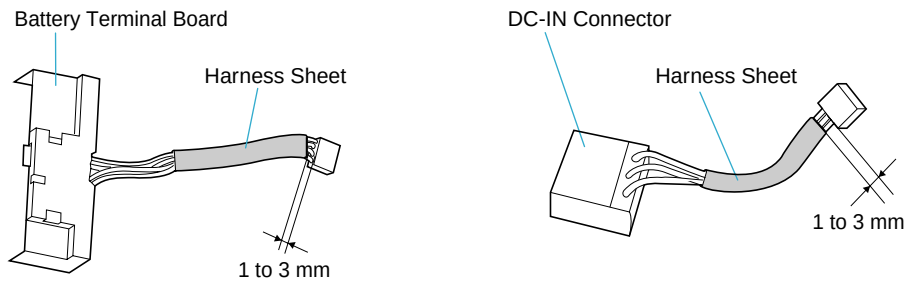
1. Attach the sheet (FP-431) to the FP-431 flexible cable of PWB by referring to the figure below.


Sheet (FP-431)
Wind the sheet around the FP-431 mount.
Tolerance: 0 to 2 mm
Reference
Attach the sheet starting from the portion shown by the arrows.
FP-431 Mount.

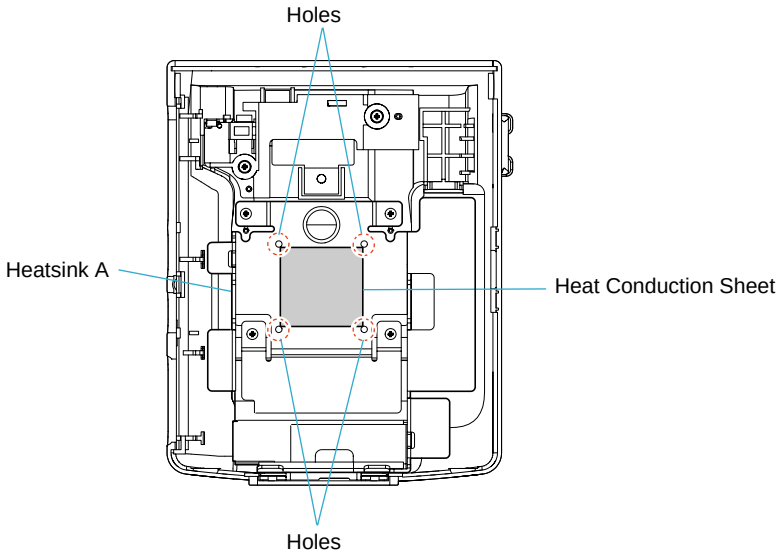
2. Attach the sheet (heatsink A) to the heatsink A by referring to the figure below.


Heatsink A
Attach the sheet (Heatsink A) to standard portion.
Attach the slit portion of the sheet to the bent portion.
Fold back
Sheet (Heatsink A)

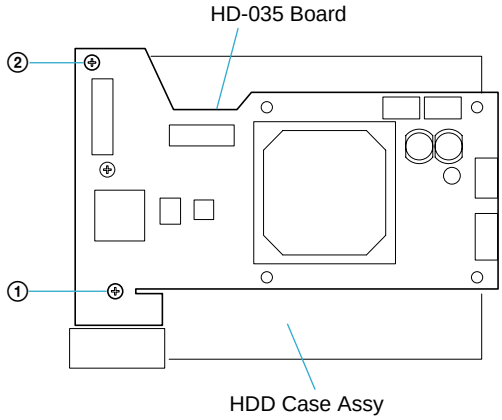
3. Attach the harness sheet to the battery terminal board and DC-IN connector by referring to the figure below.
Cut the harness sheet into 40 x 40 mm square to use.



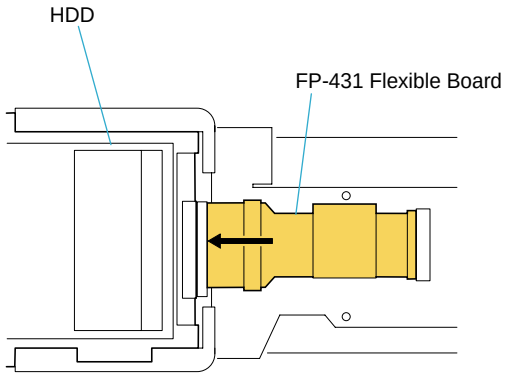
4. Attach the heat conduction sheet to the heatsink A by using four holes as a guide.



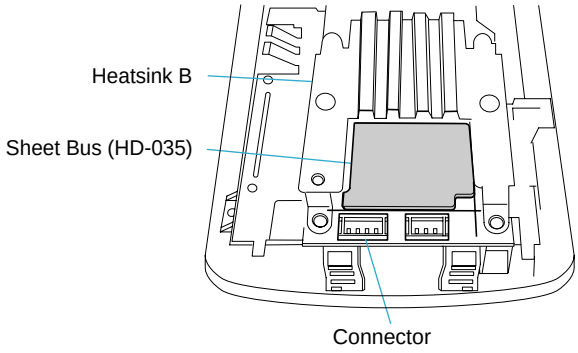
5. Tighten two screws fixing the HDD board to the HDD case assembly in the order of numbers shown in the figure below.



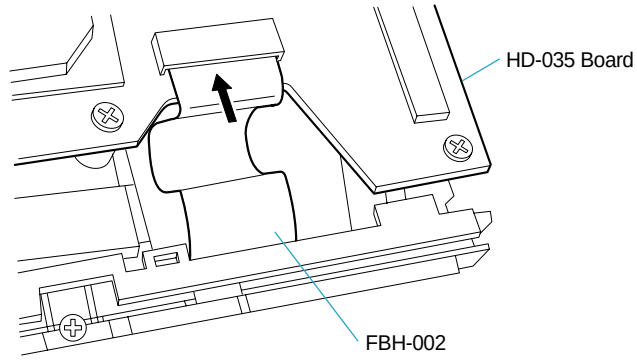
6. Insert the tip of FP-431 Flexible Board to the connector on HDD straight and firmly.



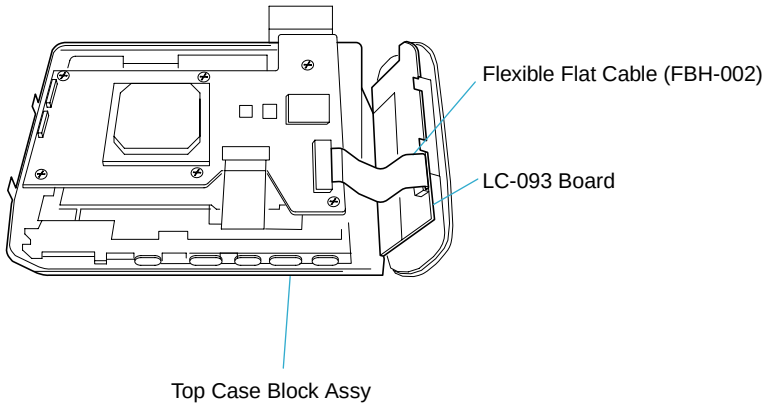
7. Attach the sheet (HD-035) sheet to the heatsink B fitting to the corner of connector.



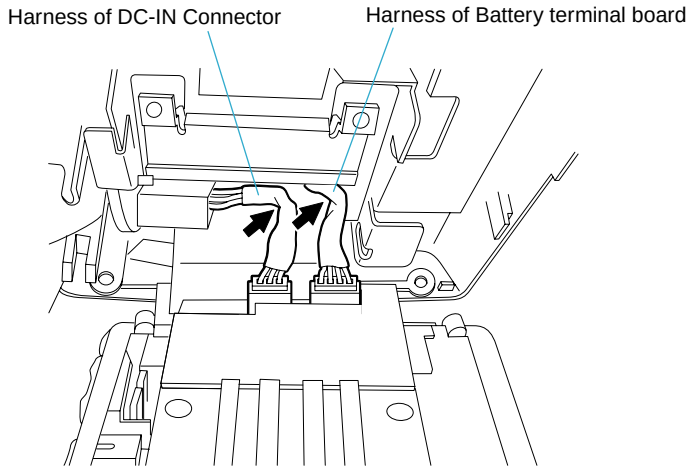
8. Insert the other end of FBH-002 connected to the SW-492 board to the connector on HD-035 board.



9. Place the FBH-002 cable connected to the LCD PWB board between the TOP CASE BLOCK ASSEMBLY and LCD PWB board.



10. Place the harnesses from the battery terminal board and DC-IN connector as shown in the figure below.



3. BLOCK DIAGRAMS

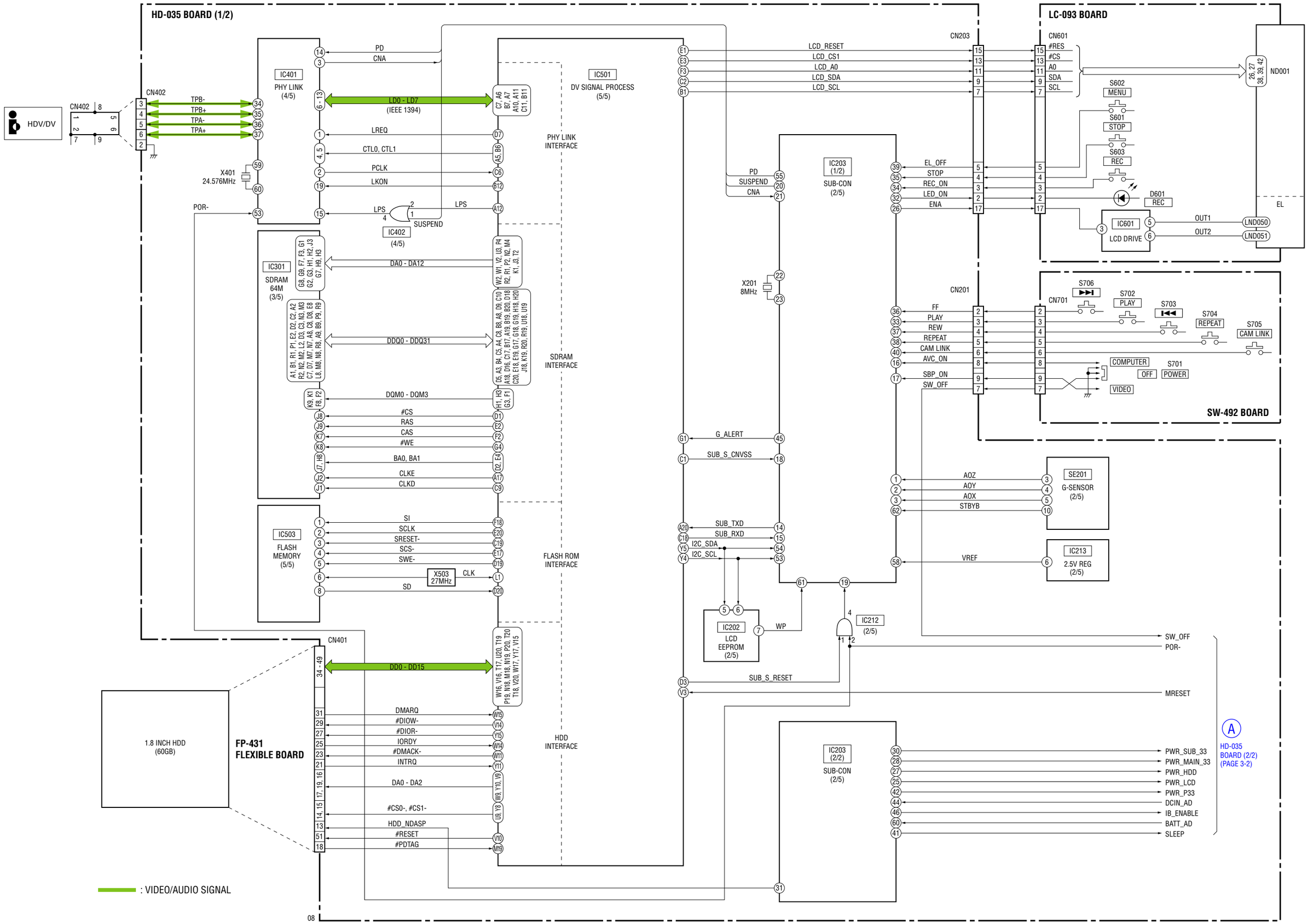
Link

- OVERALL BLOCK DIAGRAM (1/2)
- POWER BLOCK DIAGRAM
- OVERALL BLOCK DIAGRAM (2/2)

3. BLOCK DIAGRAMS

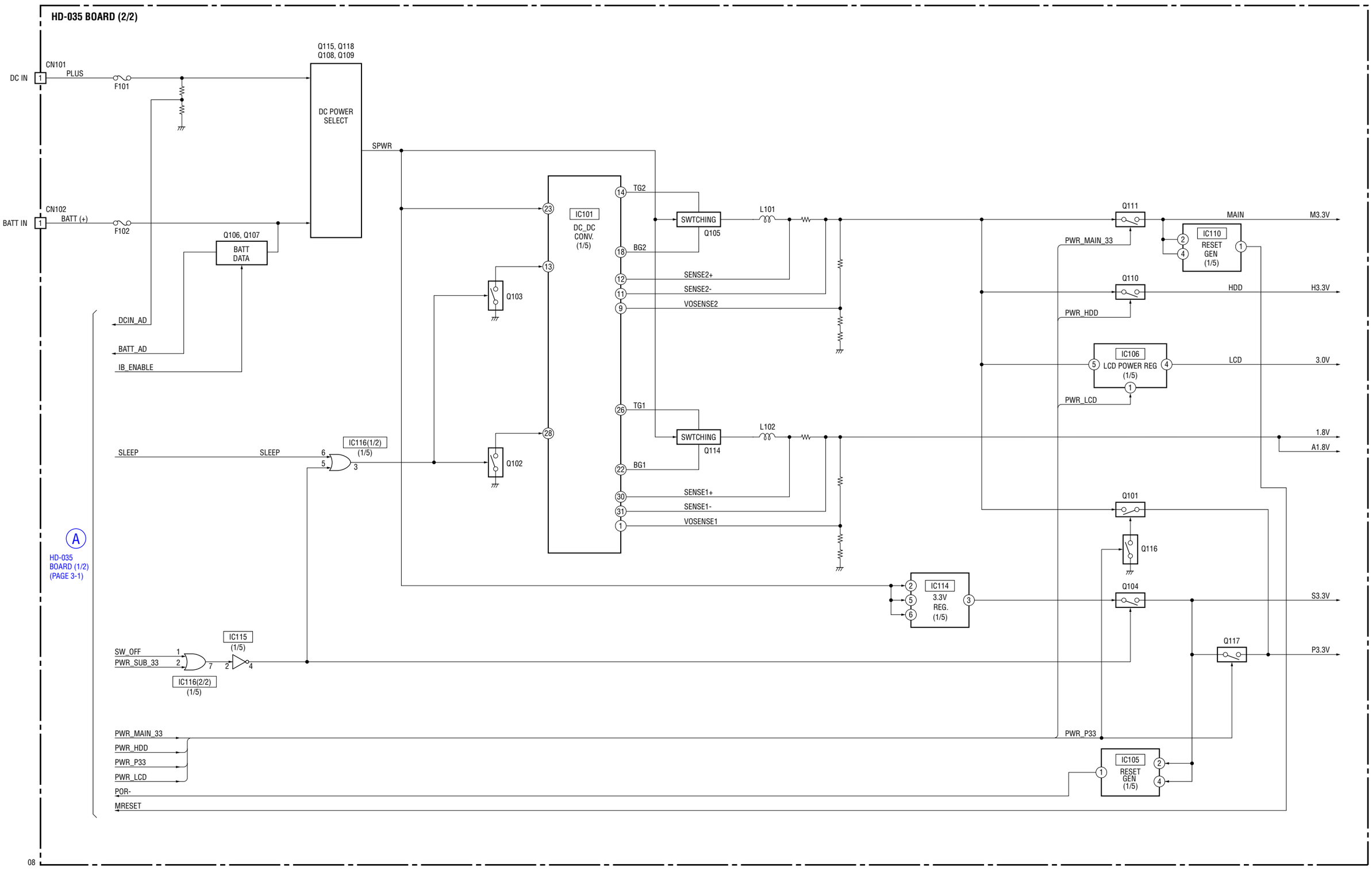
3-1. OVERALL BLOCK DIAGRAM (1/2)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



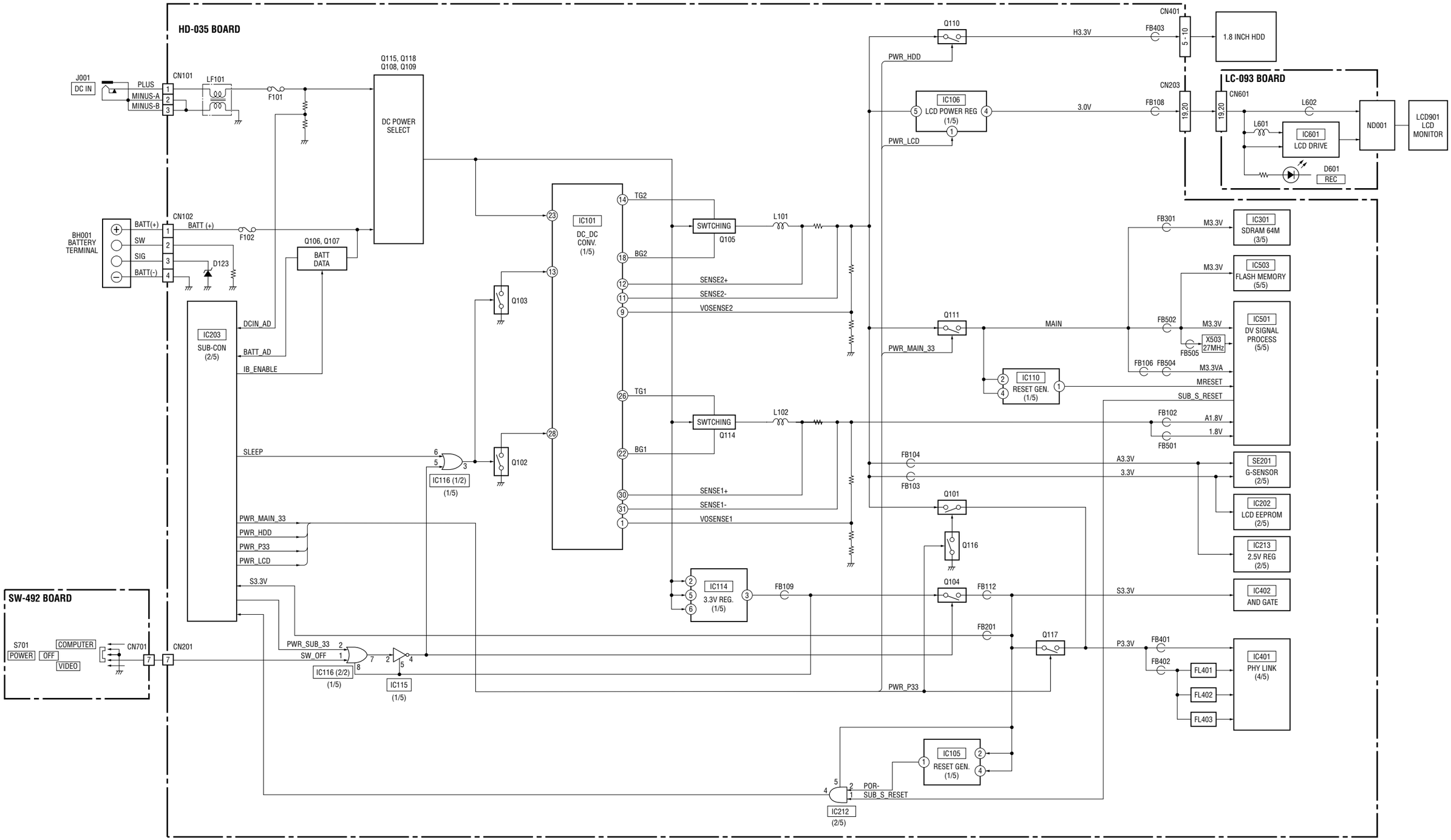
3-2. OVERALL BLOCK DIAGRAM (2/2)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



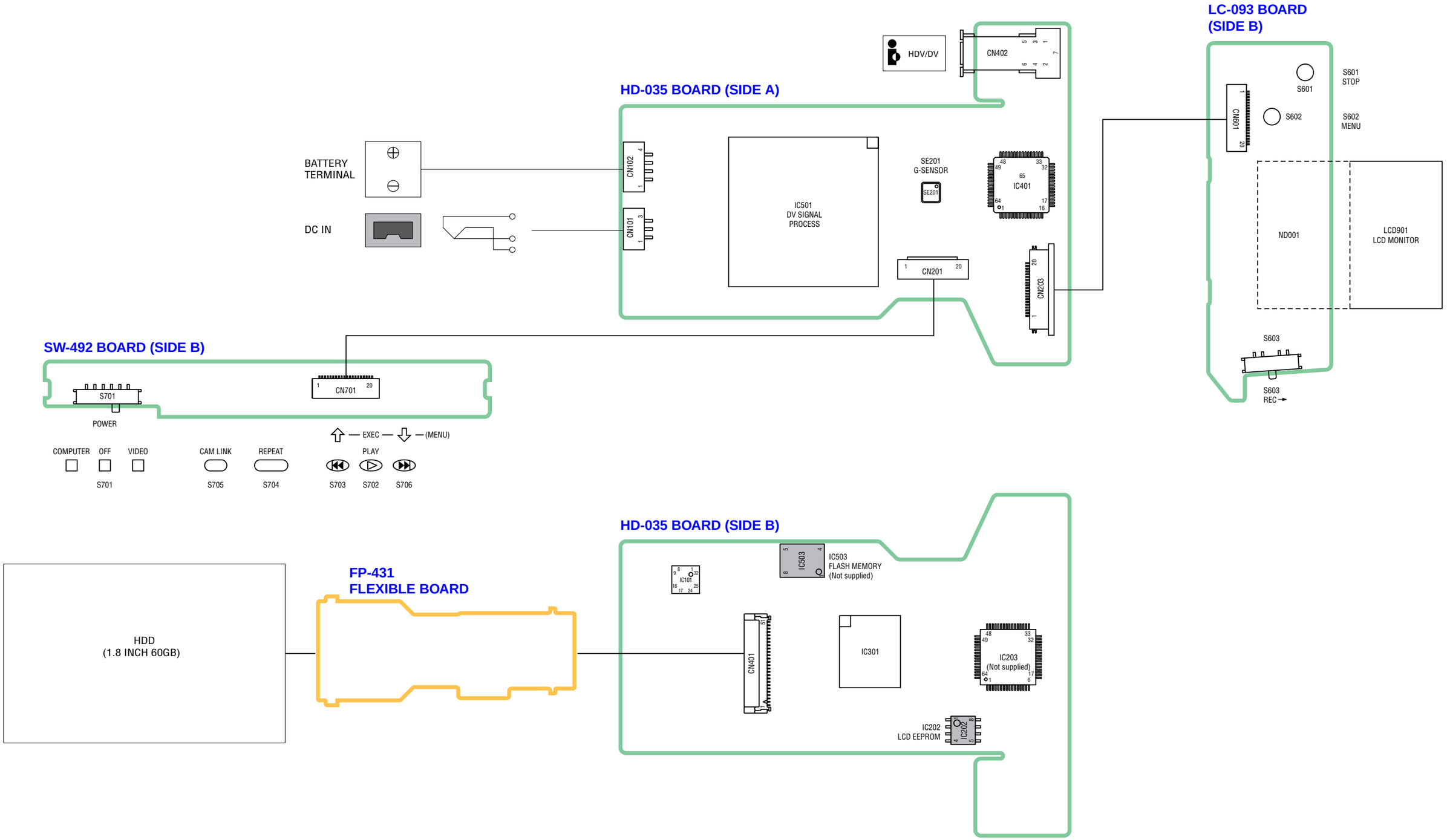
3-3. POWER BLOCK DIAGRAM

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



4-2. SCHEMATIC DIAGRAMS

Link

LC-093 BOARD (FRONT LCD/SW)	HD-035 BOARD (4/5) (PHY LINK)
HD-035 BOARD (1/5) (DC IN, POWE SUPPLY)	HD-035 BOARD (5/5) (DV SIGNAL PROCESS)
HD-035 BOARD (2/5) (SUB CONTROL)	SW-492 BOARD (CONTROL KEY BLOCK)
HD-035 BOARD (3/5) (SD RAM)	FP-431 FLEXIBLE BOARD

COMMON NOTE FOR SCHEMATIC DIAGRAMS

4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-2. SCHEMATIC DIAGRAMS (ENGLISH)

THIS NOTE IS COMMON FOR SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is printed in each block)

(For schematic diagrams)

- All capacitors are in µF unless otherwise noted. pF : µµF. 50 V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10 W unless otherwise noted. kΩ=1000 Ω, MΩ=1000 kΩ.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.

Example	C541	L452
	22U	10UH
	TA A	2520

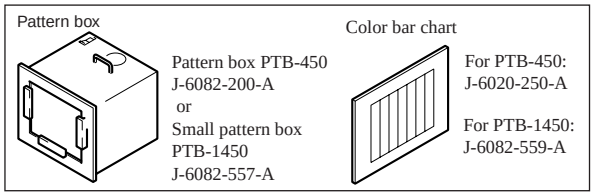
Kinds of capacitor / Case size — External dimensions (mm)

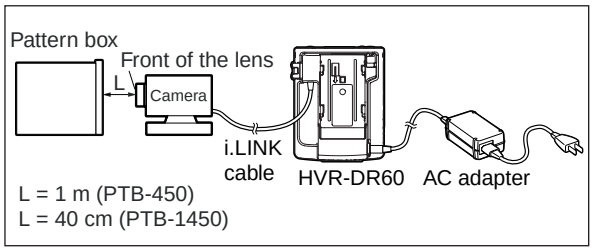
- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
  In such cases, the unused circuits may be indicated.
- Parts with ★ differ according to the model/destination.
  Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
  XEDIT → $\overline{\text{EDIT}}$ PB/XREC → PB/$\overline{\text{REC}}$
- : non flammable resistor
- : fusible resistor
- : panel designation
- : B+ Line
- : B– Line
- : IN/OUT direction of (+,–) B LINE.
- : adjustment for repair.
- : not use circuit

(Measuring conditions voltage and waveform)

- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms.
  (VOM of DC 10 MΩ input impedance is used)
- Voltage values change depending upon input impedance of VOM used.)

1. Connection





2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

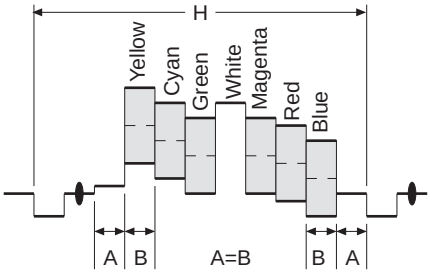


Fig. a (Video output terminal output waveform)

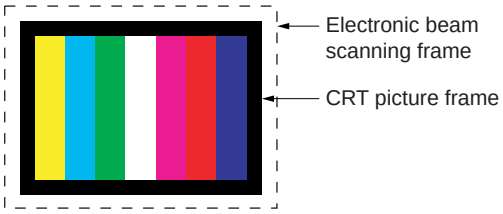


Fig.b (Picture on monitor TV)

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifie.

(JAPANESE)

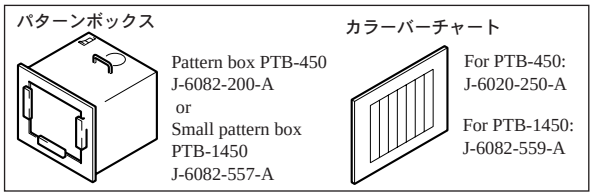
回路図共通ノート
（他に必要なノートは各ブロックに記載してあります）
【回路図ノート】
・ケミコン，タンタルを除くコンデンサで，耐圧50V以下のものはその耐圧を省略。単位はすべてμF（pはpF）。
・チップ抵抗で指示のないものは，1／10W以下。
kΩ＝1000Ω，MΩ＝1000kΩ
・チップ部品交換時の注意
取り外した部品は再使用せず，未使用の部品をご使用ください。
タンタルコンデンサのマイナス側は熱に弱いため注意してください。
・チップ部品には下記のように表示したものがあります。

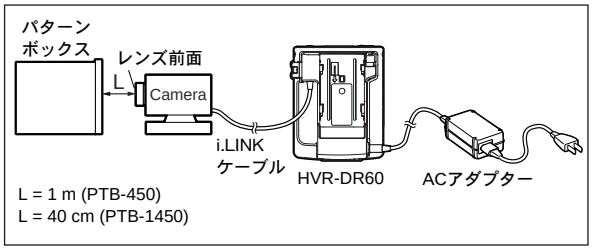
例	C 541	L 452
	22U	10UH
	TA A	2520
	↑ ↑	↑
	種類 ケースサイズ	外形寸法（mm）

・抵抗，コンデンサ，ICなど定数にXXがあるものは，使用していない事を示しています。このため，使用していない回路が記載されている事があります。
・★印のある部品は，機種などにより異なりますので機能別マウント一覧表を参照してください。
・可変抵抗と半固定抵抗で，B特性の表示を省略。
・信号名表記について，下記のような場合があります。
XEDIT → $\overline{\text{EDIT}}$　　PB/XREC → PB/$\overline{\text{REC}}$
・―[▭]―は不燃性抵抗。
・―[∿]―はヒューズ抵抗。
・▭はパネル表示名称。
・▬▬はB＋ライン。
・▬ ▬ ▬はB－ライン。
・⇨はBライン（＋，－）の入出力方向を示す。
・▭は調整名称。
・▬は未使用回路。

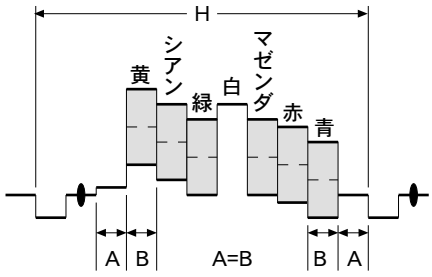
【電圧・波形測定条件ノート】
・電圧値及び信号波形はパターンボックスのカラーバーチャートを被写体としたときの測定点対アース間の参考値。
（デジタルマルチメータ；入力インピーダンス　DC10MΩ使用）
・使用テスタの入力インピーダンスにより電圧値が多少異なります。

1. 接続図

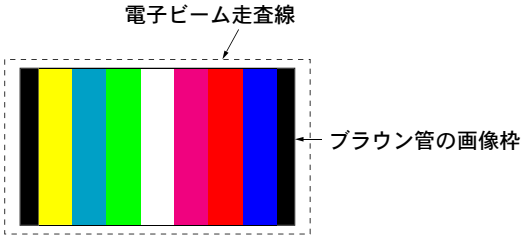




2. 図a及び図bの波形が得られるように画枠調整して下さい。



図a（映像入出力端子出力波形）



図b（テレビモニタの映像）

⚠印の部品，または⚠印付きの点線で囲まれた部品は，安全性を維持するために重要な部品です。
従って交換時は，必ず指定の部品を使用して下さい。

お願い
図面番号で部品を指定するときは基板名又はブロックを併せて指定して下さい。

• Refer to page 4-3 for mark ⚠.

LC-093 BOARD

FRONT LCD/SW

XX MARK:NO MOUNT

NO MARK:REC MODE

IC601
LCD DRIVE
IC601
SM8142BD-G-EL

L601 470uH
D602 1SS370(TE85L)
L602
EL ELEMENT
LND050
LND051

R602 100k
VSS 1.8
OSC 3.0
ENA 3.0
VDD
LDR 3.0
CHV 63.2
OUT1 31.0
OUT2 31.0
R628 0
R626 47k
R627 47k
C606 0.1u 100V

R601 330
D601 CL-196HR-CD-T
REC
C601 0.01u

SW-4P-1-SL-S
S603 REC
C602 0.01u
D603 DF2S6.8FS(TPL3)
S601 STOP
C603 0.01u
D604 DF2S6.8FS(TPL3)
S602 MENU
LCD BACKLIGHT
C604 0.01u
D605 DF2S6.8FS(TPL3)

R603 300k
R624 390
R625 150k
R605 510k
C605 10u
C616 0.1u

ND001
VSS 1
VDD1 2
P/S 3
C86 4
VSS2 5
CLS 6
M/S 7
VDD2 8
VR 9
V5 10
V4 11
V3 12
V2 13
V1 14
VDD3 15
VSS3 16
C2+ 17
C2- 18
C1+ 19
C1- 20
C3- 21
VOUT 22
VSS4 23
VSS5 24
VDD4 25
D7 26
D6 27
D5 28
D4 29
D3 30
D2 31
D1 32
D0 33
VDD5 34
RD 35
WR 36
VSS6 37
A0 38
RES 39
VDD6 40
CS2 41
CS1 42
VSS7 43
DOF 44
CL 45
FR 46
FRS 47
OSC2 48
OSC1 49

R607 33k
R608 33k
R609 33k
R610 33k
C610 1u
C607 0.1u
C611 0.1u
C608 0.1u
C612 0.1u
C613 1u
C614 1u
C609 1u
C615 1u
R611 33k
R612 33k
R613 33k
R614 33k
R615 33k
R616 33k
R617 33k
R618 33k
R606 33k

CN601 20P
GND1 1 — LED_ON
LED_ON 2 — REC_ON
REC_ON 3 — STOP
STOP 4 — EL_OFF
EL_OFF 5
GND2 6
SCL 7 — SCL
GND3 8
SDA 9 — SDA
GND4 10
A0 11 — A0
GND5 12
NCS 13 — #CS
GND6 14
NRES 15 — #RES
GND7 16
ENA 17 — ENA
GND8 18
3.0V1 19
3.0V2 20

HD-035
(2/5)
CN203
(PAGE 4-7)

SDA
SCL
A0
#RES
#CS
GND
CL600
CL601
CL602
CL603
CL604
CL605

LCD901
LCD
MONITOR

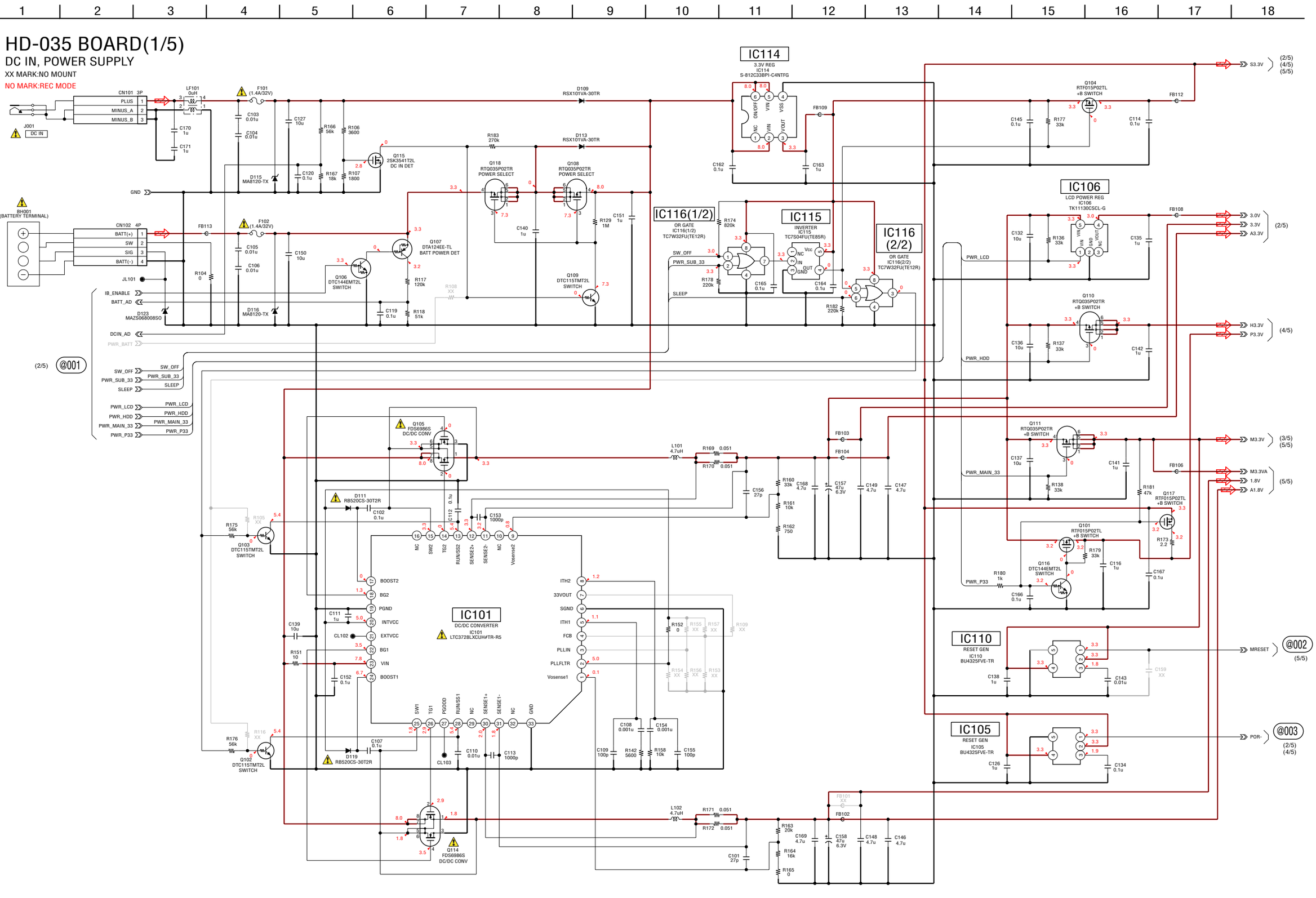
• Refer to page 4-3 for mark ⚠.

HD-035 BOARD(1/5)

DC IN, POWER SUPPLY

XX MARK:NO MOUNT

NO MARK:REC MODE



HD-035 BOARD(2/5)

SUB CONTROL

XX MARK:NO MOUNT

NO MARK:REC MODE

Note:IC203 can not be replaced, so that it is not supplied.

IC202 LCD EEPROM IC202 BR24L64F-WE2

IC203 SUB CONTROL IC203 M38049FFHHP-W4

IC212 AND GATE IC212 TC7S08FU(TE85R)

IC213 2.5V REG IC213 LT1790BCS6-2.5#TR

SE201

SW-492 CN701 (PAGE 4-11)

LC-093 CN601 (PAGE 4-5)

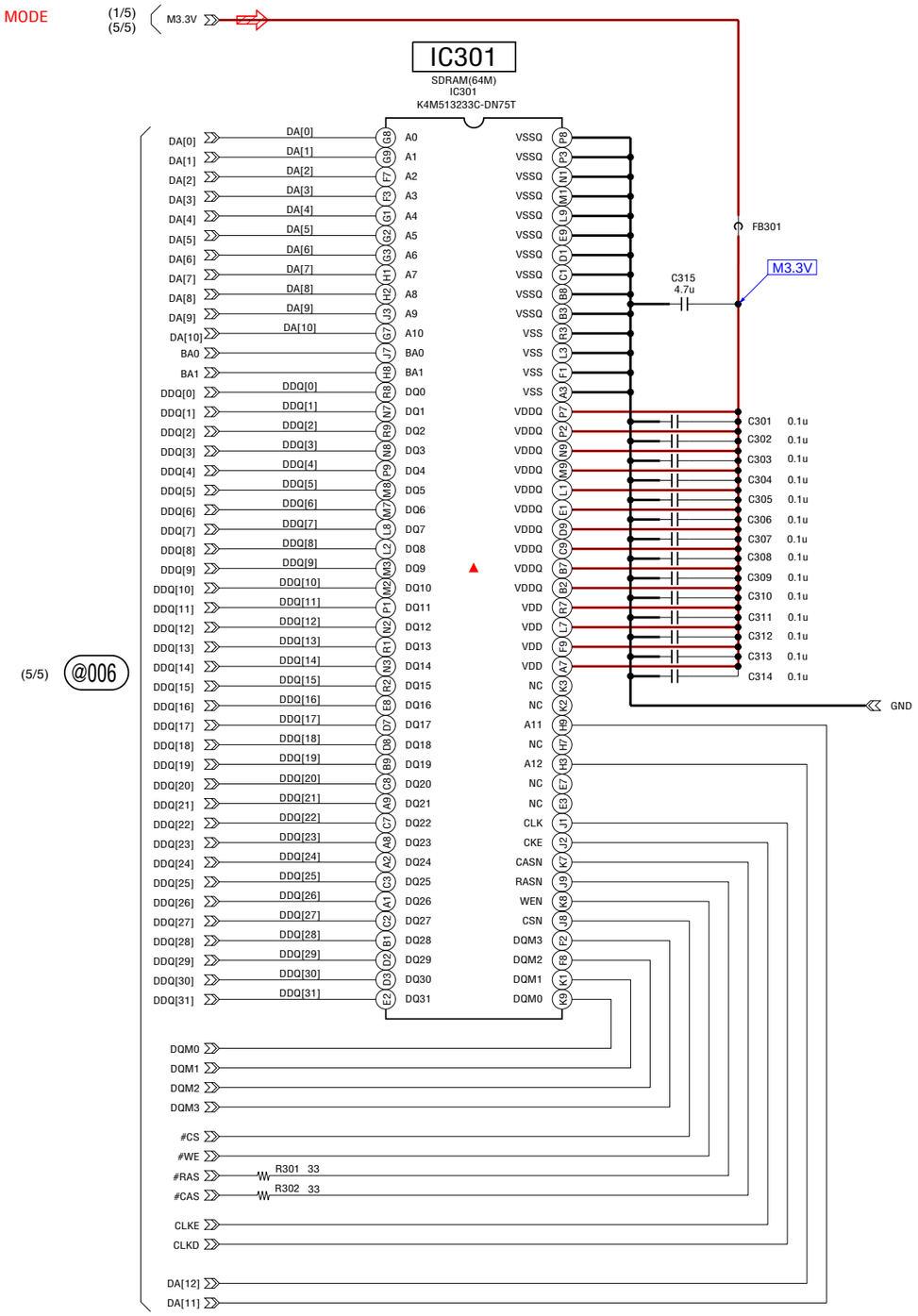
HD-035 BOARD(3/5)

SDRAM

XX MARK:NO MOUNT

NO MARK:REC MODE

▲:Voltage measurement of the CSP ICs and the Transistors with ▲ mark,are not possible.



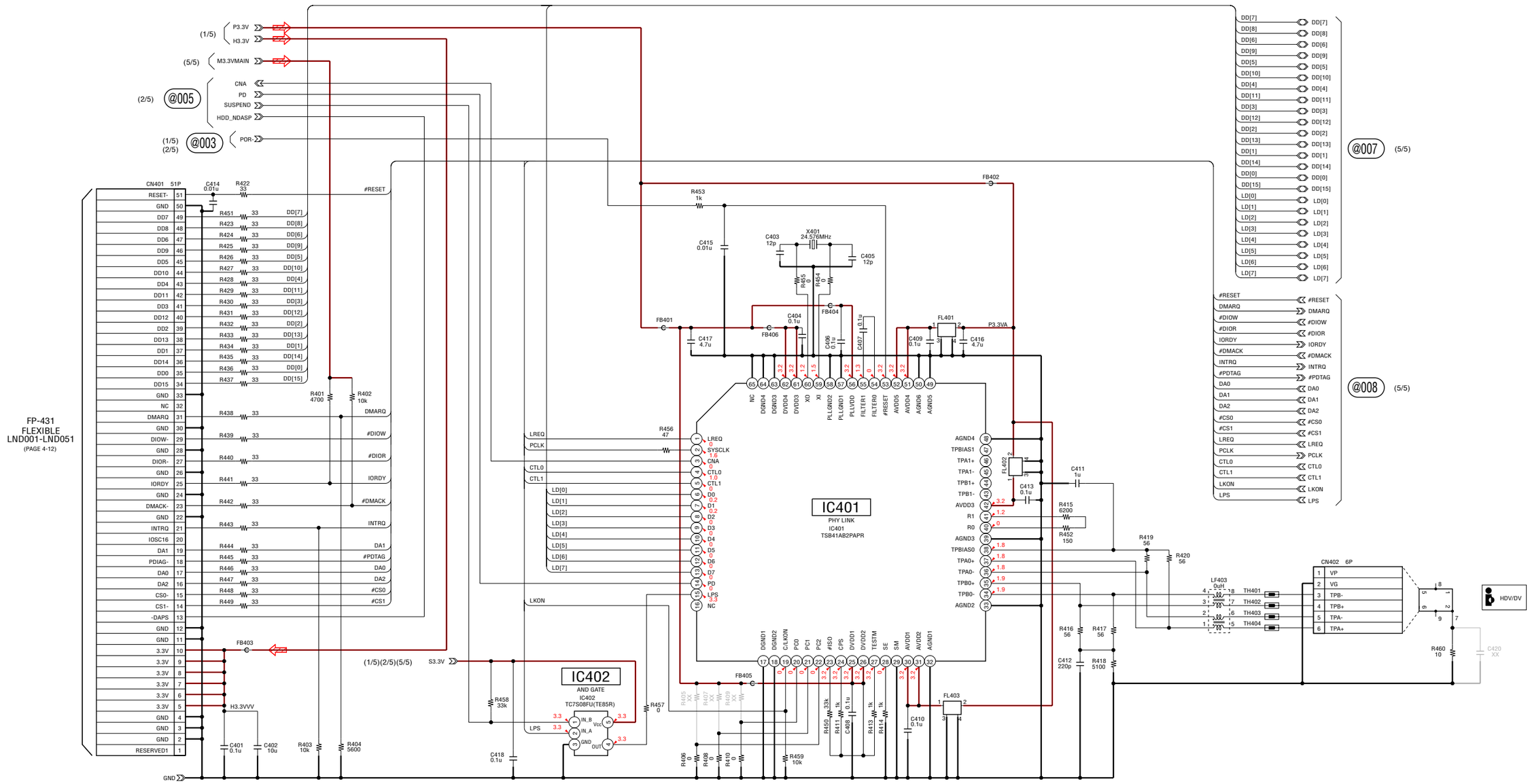
08

HD-035 BOARD(4/5)

PHY LINK

XX MARK:NO MOUNT

NO MARK:REC MODE


(1/5) P3.3V H3.3V
(5/5) M3.3VMAIN
(2/5) @005 CNA PD SUSPEND HDD_NDASP
(1/5) (2/5) @003 POR-
CN401 51P
RESET- GND DD7 DD8 DD6 DD9 DD5 DD10 DD4 DD11 DD3 DD12 DD2 DD13 DD1 DD14 DD0 DD15 GND NC DMARQ GND DIOW- GND DIOR- GND IORDY GND DMACK- GND INTRQ IOSC16 DA1 PDIAG- DA0 DA2 CS0- CS1- -DAPS GND GND 3.3V 3.3V 3.3V 3.3V 3.3V GND GND GND RESERVED1
C414 0.01u
R422 33
#RESET
R451 R423 R424 R425 R426 R427 R428 R429 R430 R431 R432 R433 R434 R435 R436 R437 33
DD[7] DD[8] DD[6] DD[9] DD[5] DD[10] DD[4] DD[11] DD[3] DD[12] DD[2] DD[13] DD[1] DD[14] DD[0] DD[15]
R401 4700
R402 10k
R438 R439 R440 R441 R442 R443 R444 R445 R446 R447 R448 R449 33
DMARQ #DIOW #DIOR IORDY #DMACK INTRQ DA1 #PDTAG DA0 DA2 #CS0 #CS1
FB403
H3.3VVV
C401 0.1u
C402 10u
R403 10k
R404 5600
GND
FP-431
FLEXIBLE
LND001-LND051
(PAGE 4-12)
(1/5)(2/5)(5/5) S3.3V
R453 1k
C415 0.01u
X401 24.576MHz
C403 12p
C405 12p
R465 R464 0
FB402
FB404
FB401
FB406
C404 0.1u
C417 4.7u
C406 0.1u
C407 0.1u
FL401
C409 0.1u
C416 4.7u
P3.3VA
NC DGND4 DGND3 DVDD4 DVDD3 XO XI PLLGND2 PLLGND1 PLLVDD FILTER1 FILTER0 #RESET AVDD5 AVDD4 AGND6 AGND5
R456 47
LREQ PCLK CTL0 CTL1 LD[0] LD[1] LD[2] LD[3] LD[4] LD[5] LD[6] LD[7]
SYSCLK CNA CTL0 CTL1 D0 D1 D2 D3 D4 D5 D6 D7 PD LPS NC
IC401
PHY LINK
IC401
TSB41AB2PAPR
AGND4 TPBIAS1 TPA1+ TPA1- TPB1+ TPB1- AVDD3 R1 R0 AGND3 TPBIAS0 TPA0+ TPA0- TPB0+ TPB0- AGND2
FL402
C411 1u
C413 0.1u
R415 6200
R452 150
R419 56
R420 56
R416 56
R417 56
C412 220p
R418 5100
LF403 0uH
TH401 TH402 TH403 TH404
CN402 6P
VP VG TPB- TPB+ TPA- TPA+
HDV/DV
R460 10
C420 XX
LKON
IC402
AND GATE
IC402
TC7S08FU(TE85R)
IN_B IN_A GND Vcc OUT
R458 33k
R457 0
LPS
C418 0.1u
DGND1 DGND2 C/LKON PD0 PC1 PC2 #ISO CPS DVDD1 DVDD2 TESTM SE SM AVDD1 AVDD2 AGND1
FB405
R405 XX R407 XX R409 XX
R406 0 R408 0 R410 0
R450 33k R411 1k C408 0.1u R413 1k R414 1k
C410 0.1u
FL403
R459 10k
DD[7] DD[8] DD[6] DD[9] DD[5] DD[10] DD[4] DD[11] DD[3] DD[12] DD[2] DD[13] DD[1] DD[14] DD[0] DD[15] LD[0] LD[1] LD[2] LD[3] LD[4] LD[5] LD[6] LD[7]
@007 (5/5)
#RESET DMARQ #DIOW #DIOR IORDY #DMACK INTRQ #PDTAG DA0 DA1 DA2 #CS0 #CS1 LREQ PCLK CTL0 CTL1 LKON LPS
@008 (5/5)

HD-035 BOARD(5/5)

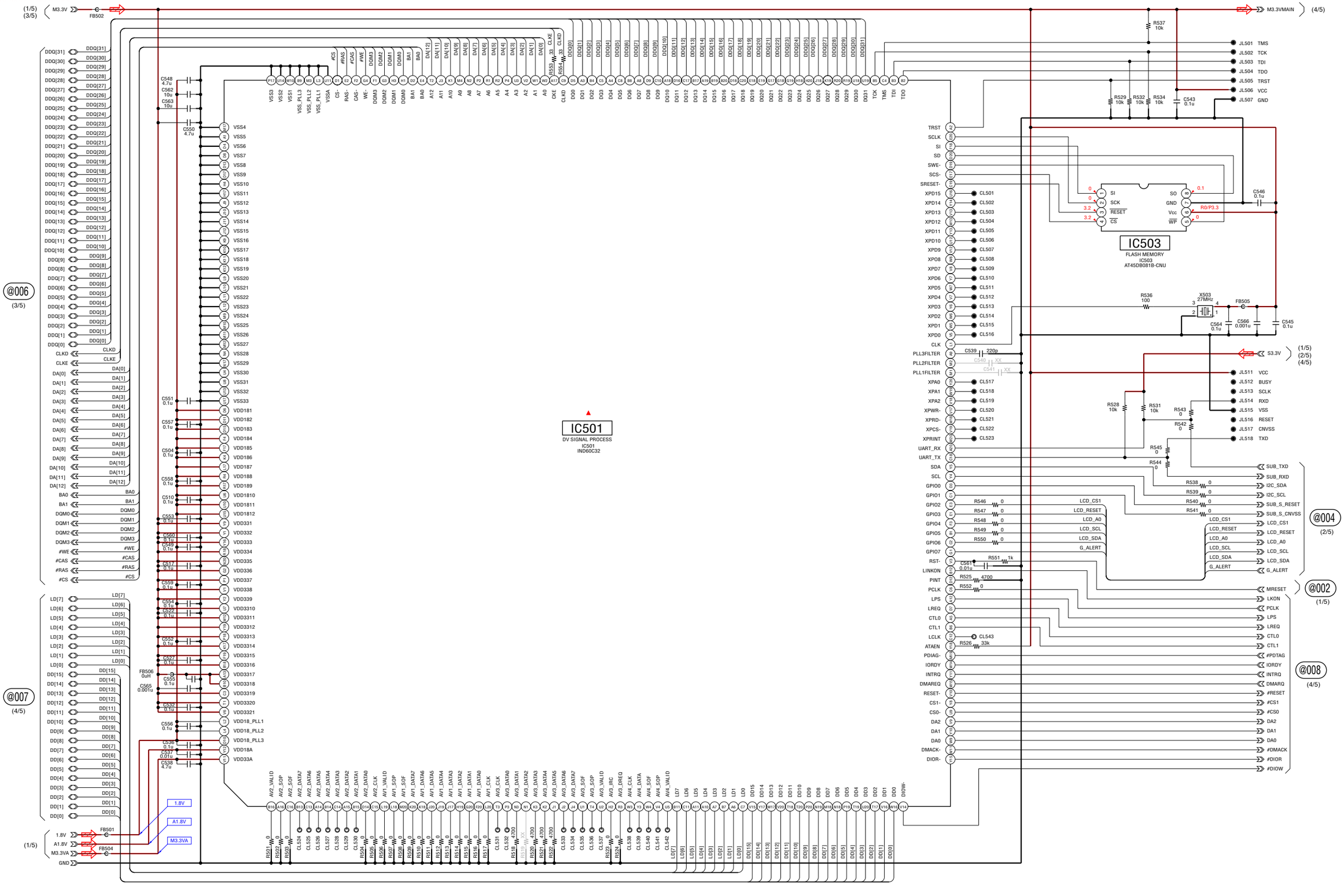
DV SIGNAL PROCESS

XX MARK:NO MOUNT

NO MARK:REC MODE

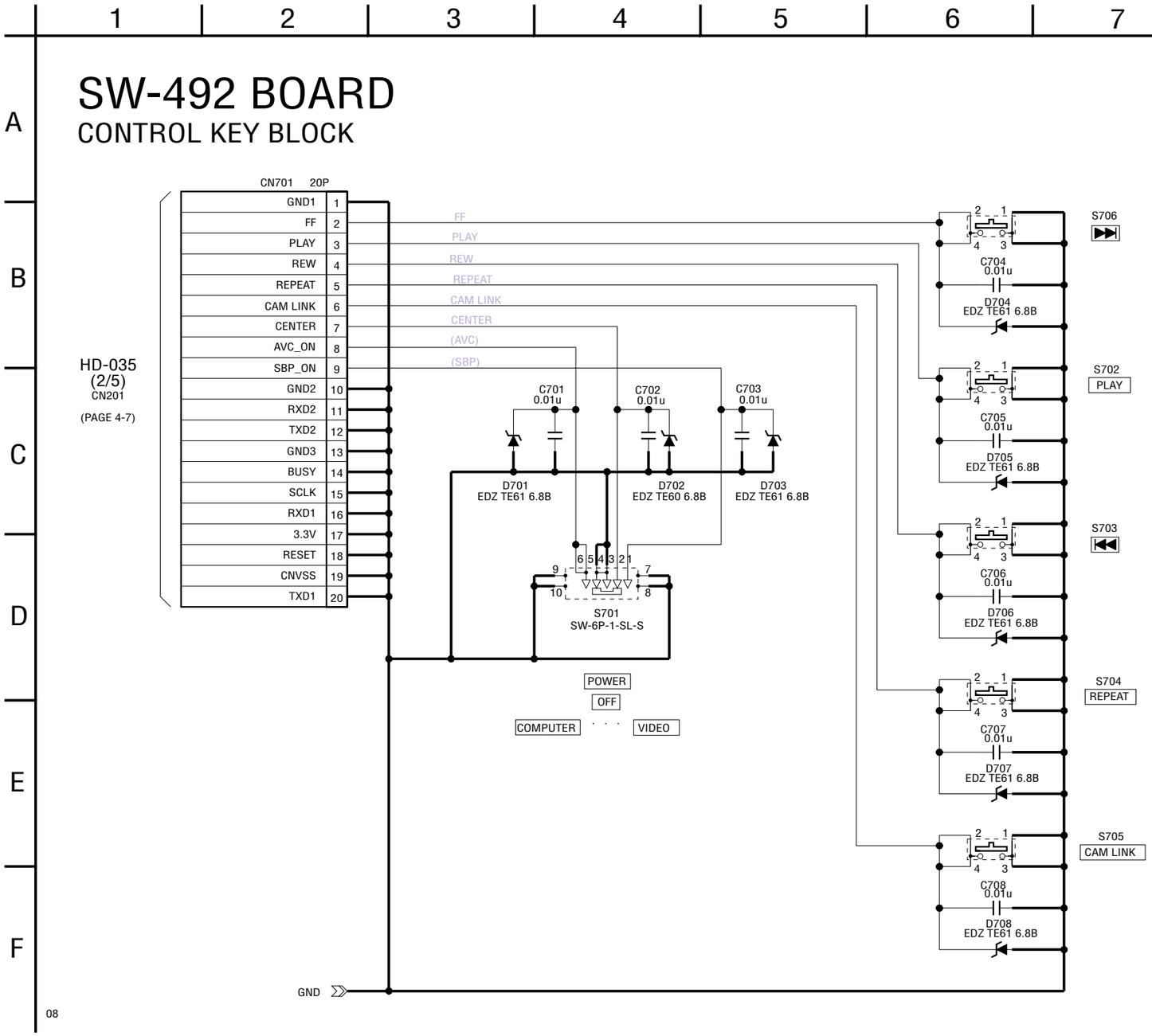
▲:Voltage measurement of the CSP ICs and the Transistors with ▲ mark,are not possible.

Note:IC503 can not be replaced, so that it is not supplied.

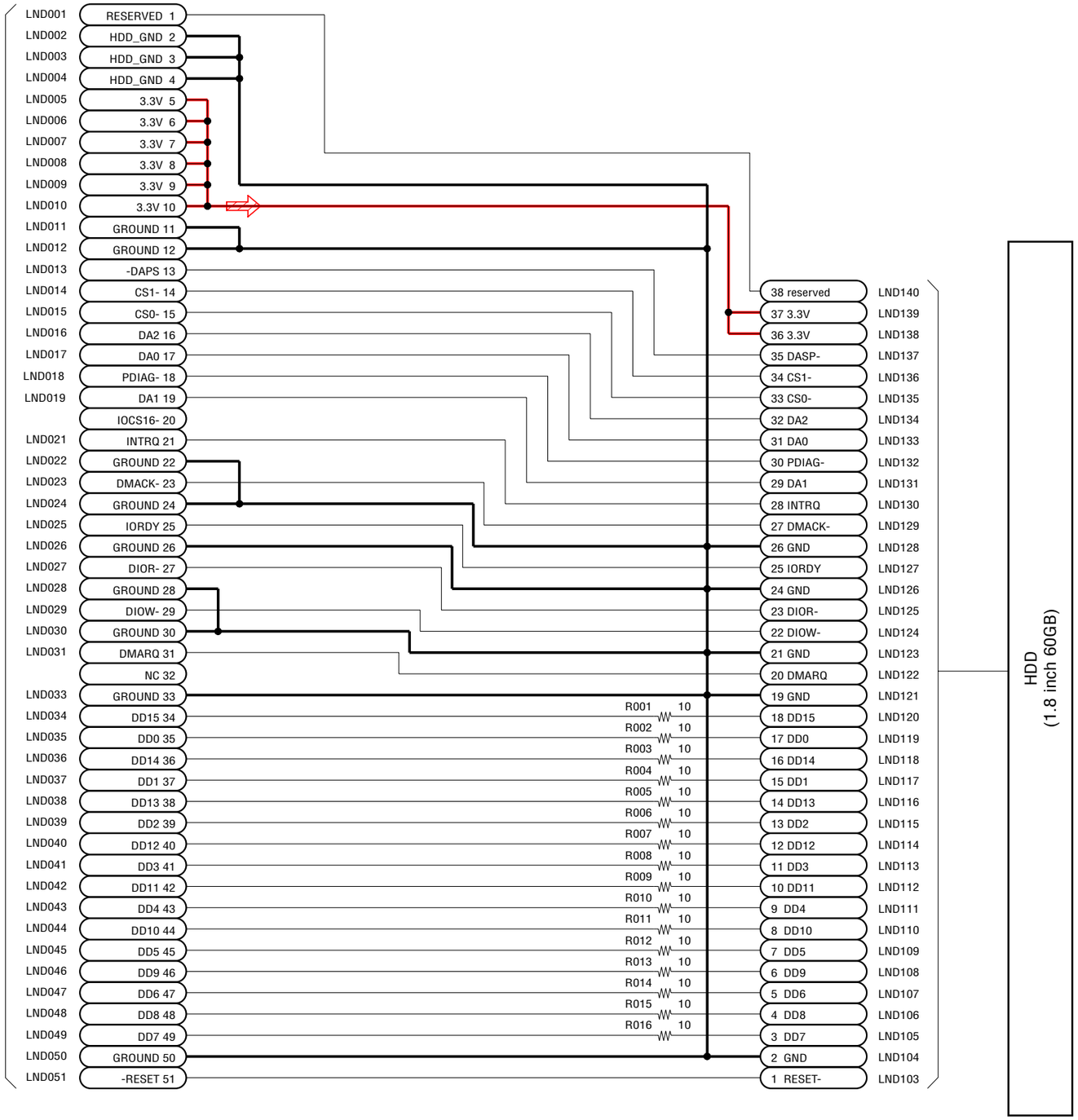


SW-492 BOARD

CONTROL KEY BLOCK



FP-431 FLEXIBLE BOARD



4-3. PRINTED WIRING BOARDS

Link

- LC-093 BOARD (SIDE A)
- LC-093 BOARD (SIDE B)
- HD-035 BOARD (SIDE A)
- HD-035 BOARD (SIDE B)
- SW-492 BOARD
- FP-431 FLEXIBLE BOARD

- COMMON NOTE FOR PRINTED WIRING BOARDS
- MOUNTED PARTS LOCATION

4-3. PRINTED WIRING BOARDS

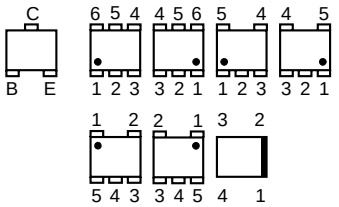
(ENGLISH)

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS

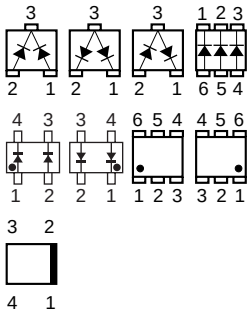
- : Uses unleaded solder.
- : Circuit board
  : Flexible board
  Pattern from the side which enables seeing.
  : pattern of the rear side
  (The other layers' patterns are not indicated)
- Through hole is omitted.
- There are a few cases that the part printed on diagram isn't mounted in this model.
- : panel designation

- Chip parts.

Transistor



Diode



(JAPANESE)

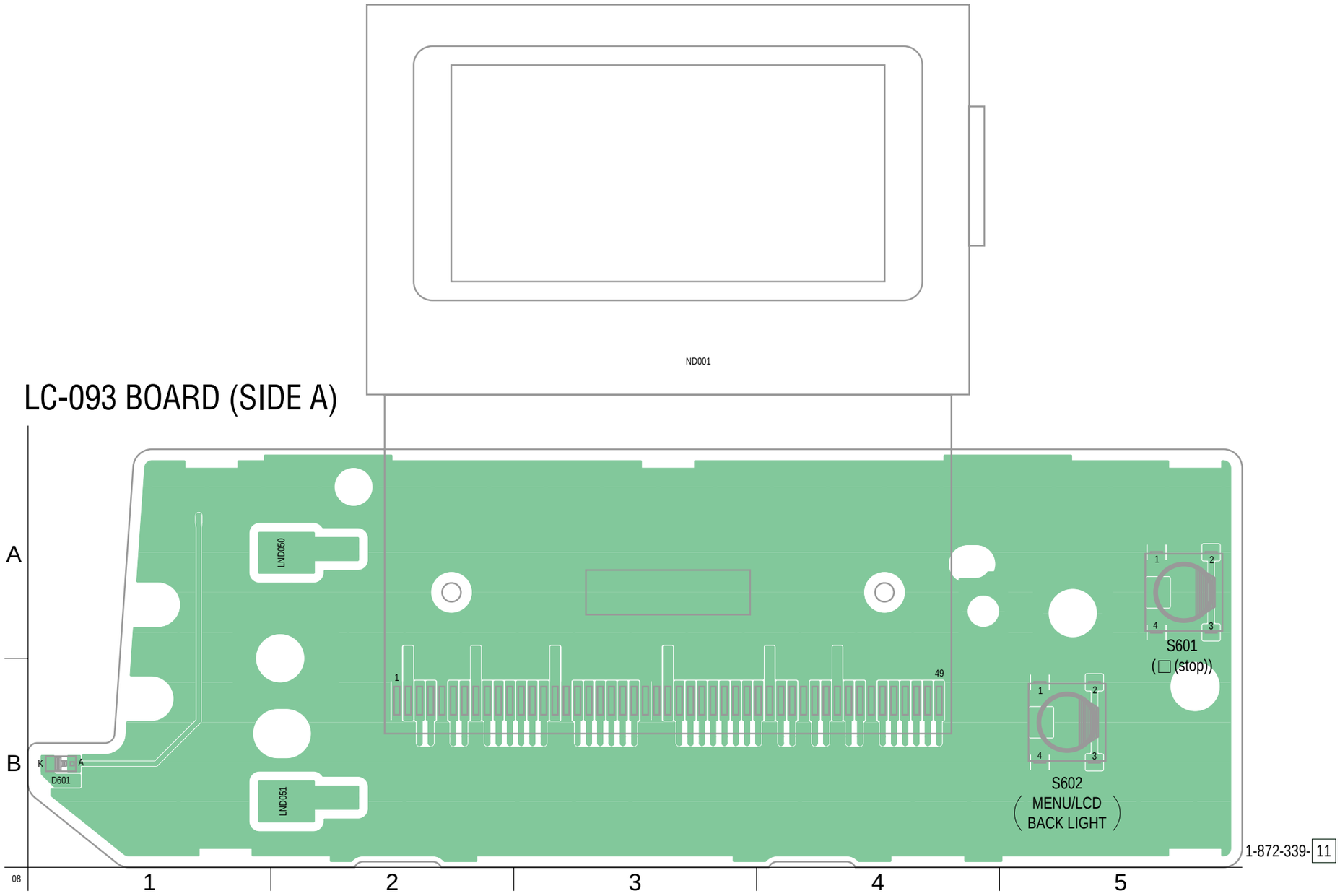
プリント図共通ノート

【プリント図ノート】

- ：無鉛半田を使用しています。
- ：基板
  ：フレキシブル配線板
  見ている面側のパターン。
  ：裏側のパターン
  （他のパターンについては表示されていません）
- スルーホールは省略。
- プリント図には，本機で使用していない部品が記載されている場合があります。
- はパネル表示名称。

LC-093 (6 layers)

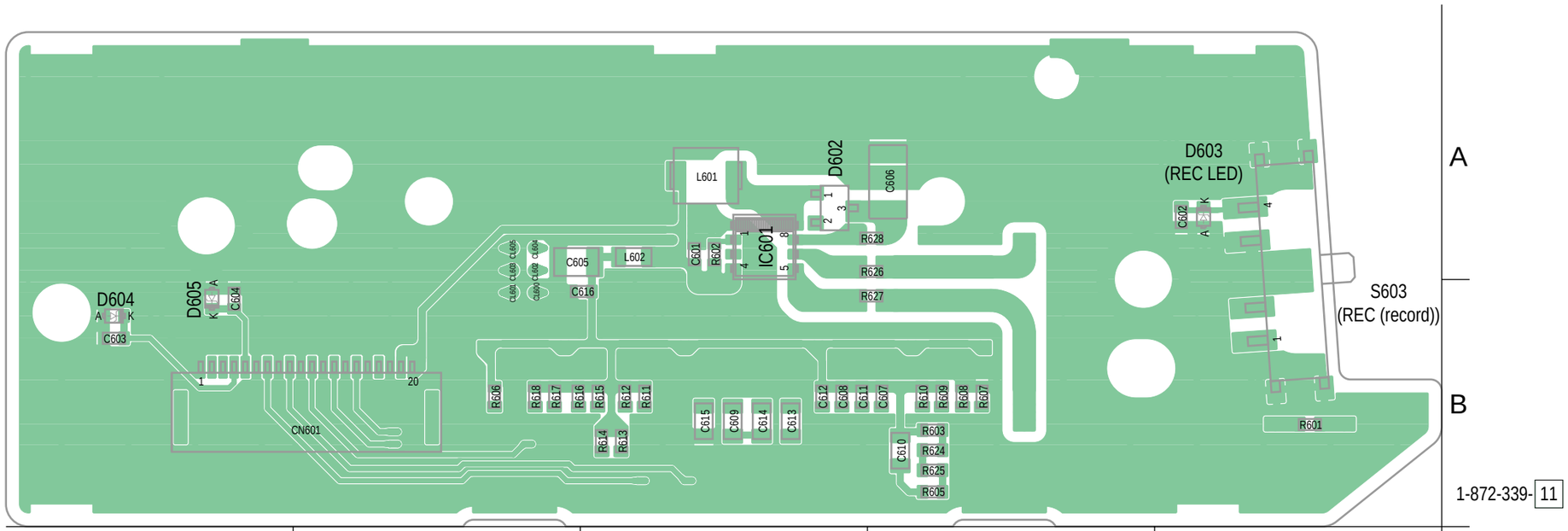
: Uses unleaded solder.



LC-093 (6 layers)

: Uses unleaded solder.

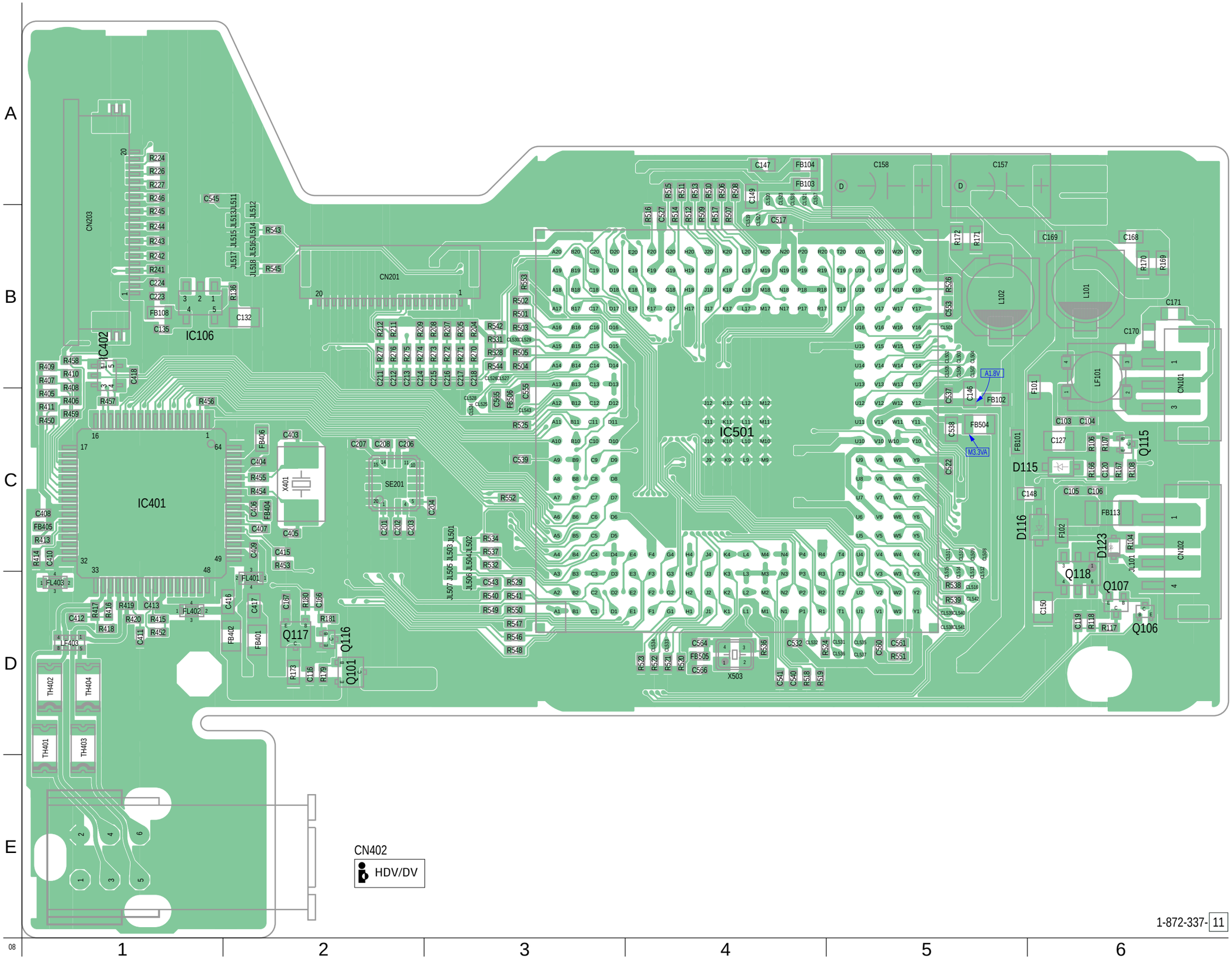
LC-093 BOARD (SIDE B)



HD-035 (6 layer)

: Uses unleaded solder.

HD-035 BOARD (SIDE A)



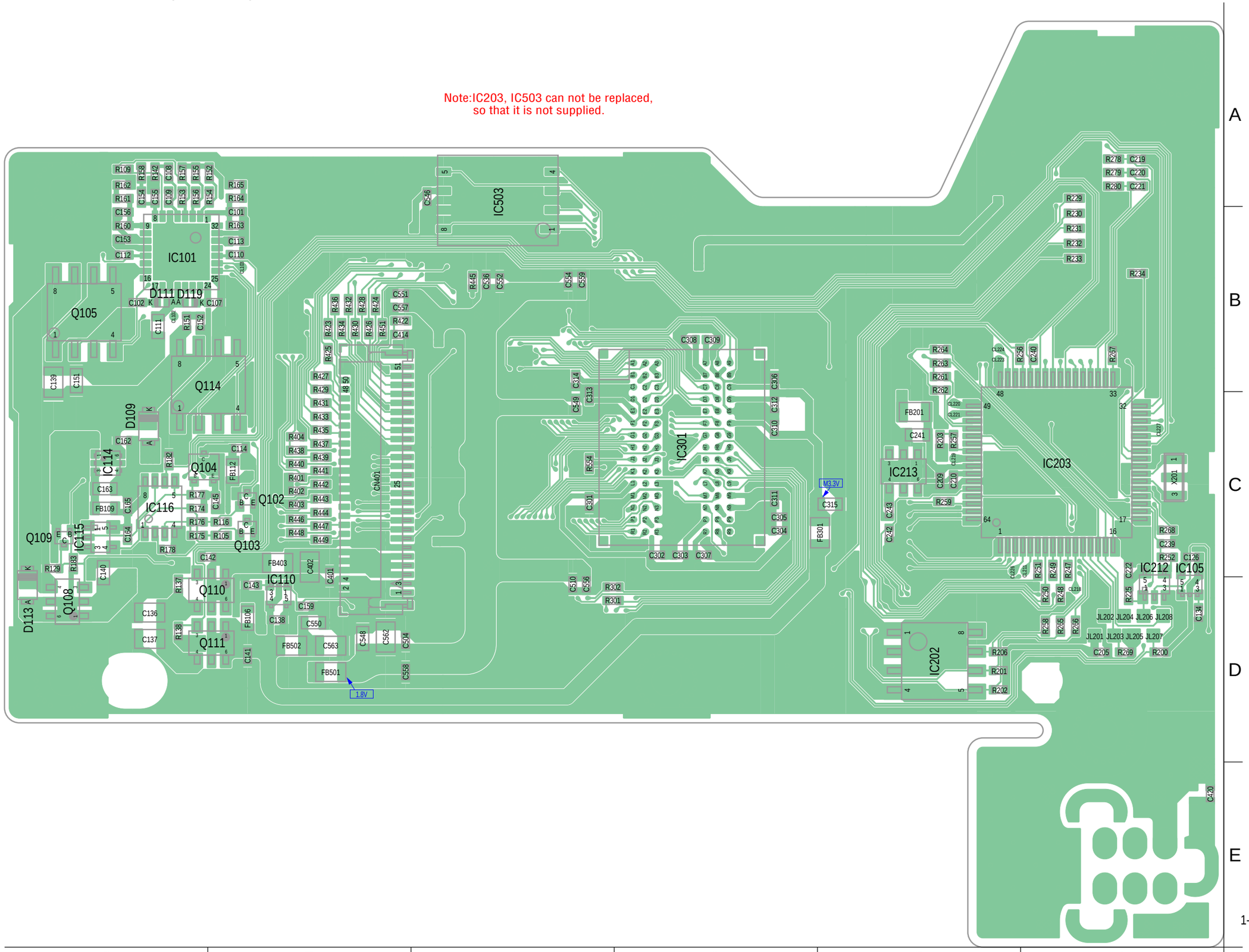
1-872-337-11

HD-035 (6 layer)

: Uses unleaded solder.

HD-035 BOARD (SIDE B)

Note:IC203, IC503 can not be replaced,
so that it is not supplied.

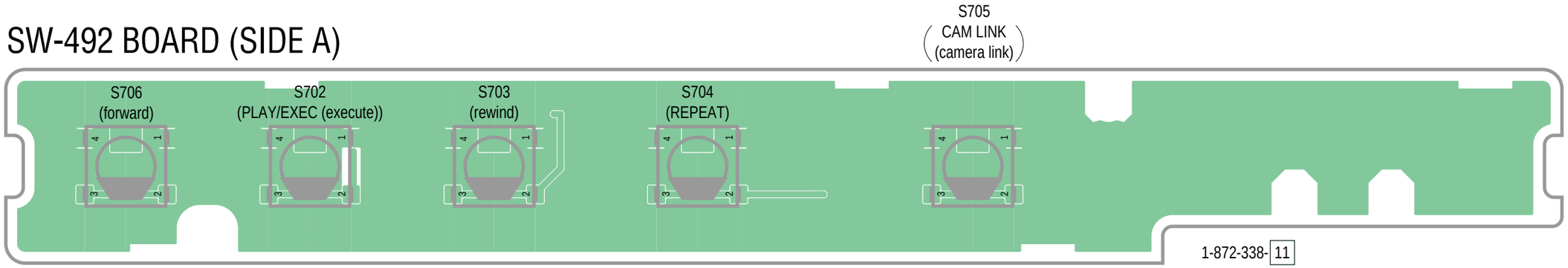


1-872-337-11

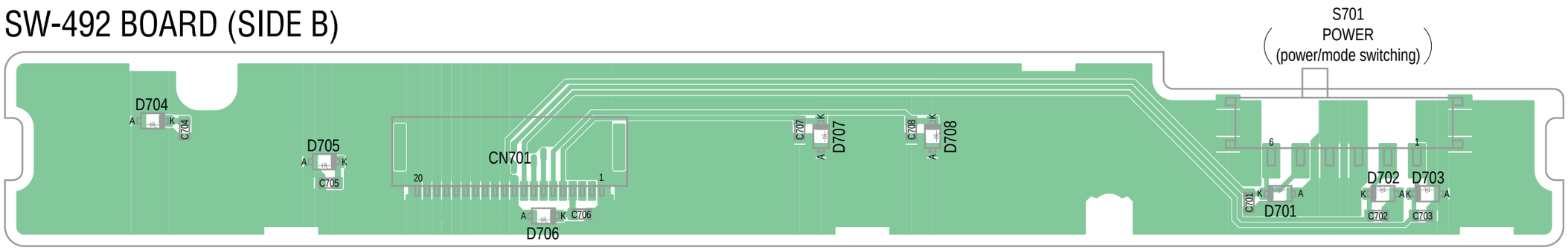
SW-492 (6 layers), FP-431 (2 layer)

: Uses unleaded solder.

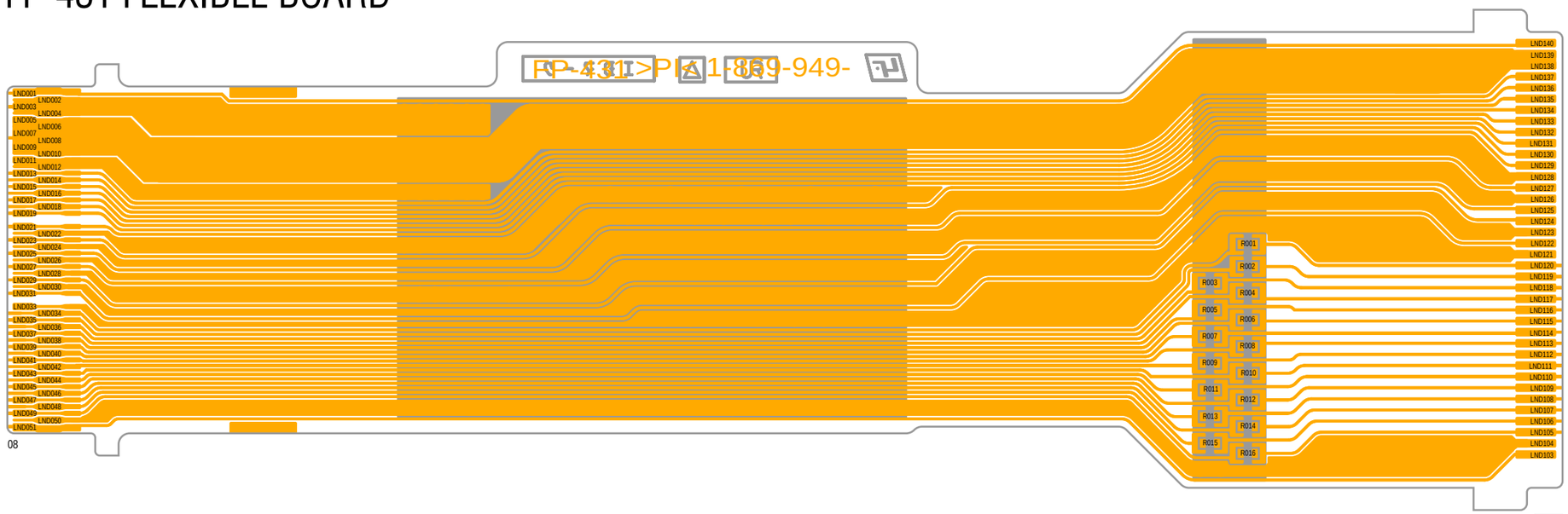
SW-492 BOARD (SIDE A)



SW-492 BOARD (SIDE B)



FP-431 FLEXIBLE BOARD



4-4. MOUNTED PARTS LOCATION

no mark : side A
* mark : side B

LC-093 BOARD

* C601	A3	
* C602	A1	
* C603	B5	
* C604	B5	
* C605	A4	
* C606	A2	
* C607	B2	
* C608	B3	
* C609	B3	
* C610	B2	
* C611	B3	
* C612	B3	
* C613	B3	
* C614	B3	
* C615	B3	
* C616	B3	
* CL600	B4	
* CL601	B4	
* CL602	A4	
* CL603	A4	
* CL604	A4	
* CL605	A4	
* CN601	B4	
D601	B1	
* D602	A3	
* D603	A1	
* D604	B5	
* D605	B5	
* IC601	A3	
* L601	A3	
* L602	A3	
LND050	A2	
LND051	B2	
* R601	B1	
* R602	A3	
* R603	B2	
* R605	B2	
* R606	B4	
* R607	B2	
* R608	B2	
* R609	B2	
* R610	B2	
* R611	B3	
* R612	B3	
* R613	B3	
* R614	B3	
* R615	B3	
* R616	B4	
* R617	B4	
* R618	B4	
* R624	B2	
* R625	B2	
* R626	A2	
* R627	B2	
* R628	A2	
S601	A5	
S602	B5	
* S603	A1	

HD-035 BOARD

* C101	B5	
* C102	B6	
C103	C6	
C104	C6	
C105	C6	
C106	C6	
* C107	B5	
* C108	A6	
* C109	A6	
* C110	B5	
* C111	B6	
* C112	B6	
* C113	B5	
* C114	C5	
C116	D2	
C119	D6	
C120	C6	
* C126	C1	
C127	C6	
C132	B2	
* C134	D1	
C135	B1	
* C136	D6	
* C137	D6	
* C138	D5	
* C139	B6	
* C140	C6	
* C141	D5	
* C142	C5	
* C143	D5	
* C145	C5	
C146	C5	
C147	A4	
C148	C6	
C149	A4	
C150	D6	
* C151	B6	
* C152	B6	
* C153	B6	
* C154	A6	
* C155	A6	
* C156	B6	
C157	A5	
C158	A5	
* C159	D5	
* C162	C6	
* C163	C6	
* C164	C6	
* C165	C6	
C166	D2	
C167	D2	
C168	B6	
C169	B6	
C201	C2	
C202	C2	
C203	C2	
C204	C3	
* C205	D1	
C206	C2	
C207	C2	
C208	C2	
* C209	C2	
* C210	C2	
C211	B2	
C212	B2	
C213	B2	
C214	B2	
C215	B3	
C216	B3	
C217	B3	
C218	B3	
* C219	A1	
* C220	A1	
* C221	A1	
* C222	C1	
C223	B1	
C224	B1	
* C239	C1	
* C240	B1	
* C241	C2	
* C242	C2	
* C243	C2	
* C301	C4	
* C302	C3	
* C303	C3	
* C304	C3	
* C305	C3	
* C306	B3	
* C307	C3	
* C308	B3	
* C309	B3	
* C310	C3	
* C311	C3	
* C312	C3	
* C313	C4	
* C314	B4	
* C315	C2	
* C401	C5	
* C402	C5	
C403	C2	
C404	C2	
C405	C2	
C406	C2	
C407	C2	
C408	C1	
C409	C2	
C410	C1	
C411	D1	
C412	D1	
C413	D1	
* C414	B5	
C415	C2	
C416	D2	
C417	D2	
C418	B1	
* C420	E1	
* C504	D5	
* C510	D4	
C517	B4	
C522	C5	
C527	B4	
C532	D4	
* C536	B4	
C537	C5	
C538	C5	
C539	C3	
C540	D4	
C541	D4	
C543	D3	
C545	A1	
* C546	A4	
* C548	D5	
* C549	C4	
* C550	D5	
* C551	B5	
* C552	B4	
C553	B5	
* C554	B4	
C555	C3	
* C556	D4	
* C557	B5	
* C558	D5	
* C559	B4	
C560	D5	
C561	D5	
* C562	D5	
* C563	D5	
C564	D4	
C565	C3	
C566	D4	
* CL102	B6	
* CL103	B5	
* CL211	C1	
* CL218	D1	
* CL219	C2	
* CL220	C2	
* CL221	C2	
* CL223	B2	
* CL224	B2	
* CL226	C2	
* CL227	C1	
CL501	B5	
CL502	B5	
CL503	B5	
CL504	B5	
CL505	B5	
CL506	B5	
CL507	B5	
CL508	C5	
CL509	C5	
CL510	C5	
CL511	C5	
CL512	D5	
CL513	D5	
CL514	D5	
CL515	D5	
CL516	D5	
CL517	A4	
CL518	A4	
CL519	B4	
CL520	A4	
CL521	A4	
CL522	B4	
CL523	A4	
CL524	C3	
CL525	C3	
CL526	B3	
CL527	B3	
CL528	C3	
CL529	B3	
CL530	B3	
CL531	D5	
CL532	D4	
CL533	D4	
CL534	D4	
CL535	D5	
CL536	D5	
CL537	D5	
CL538	D5	
CL539	D5	
CL540	D5	
CL541	D5	
CL542	D5	
CL543	C3	
CN101	B6	
CN102	C6	
CN201	B2	
CN203	B1	
* CN401	C5	
CN402	E1	
* D109	C6	
* D111	B6	
* D113	D6	
D115	C5	
D116	C5	
* D119	B6	
D123	C6	
F101	C6	
F102	C6	
FB101	C5	
FB102	C5	
FB103	A4	
FB104	A4	
* FB106	D5	
FB108	B1	
* FB109	C6	
* FB112	C5	
FB113	C6	
* FB201	C2	
* FB301	C2	
FB401	D2	
FB402	D2	
* FB403	C5	
FB404	C2	
FB405	C1	
FB406	C2	
* FB501	D5	
* FB502	D5	
FB504	C5	
FB505	D4	
FB506	C3	
FL401	D2	
FL402	D1	
FL403	D1	
* IC101	B6	
* IC105	C1	
IC106	B1	
* IC110	D5	
* IC114	C6	
* IC115	C6	
* IC116	C6	
* IC202	D2	
* IC203	C1	
* IC212	C1	
* IC213	C2	
* IC301	C3	
IC401	C1	
IC402	B1	
IC501	C4	
* IC503	A4	
JL101	C6	
* JL201	D1	
* JL202	D1	
* JL203	D1	
* JL204	D1	
* JL205	D1	
* JL206	D1	
* JL207	D1	
* JL208	D1	
JL501	C3	
JL502	C3	
JL503	C3	
JL504	C3	
JL505	C3	
JL506	D3	
JL507	D3	
JL511	A2	
JL512	B2	
JL513	B2	
JL514	B2	
JL515	B2	
JL516	B2	
JL517	B2	
JL518	B2	
L101	B6	
L102	B5	
LF101	B6	
LF403	D1	
Q101	D2	
* Q102	C5	
* Q103	C5	
* Q104	C6	
* Q105	B6	
Q106	D6	
Q107	D6	
* Q108	D6	
* Q109	C6	
* Q110	D5	
* Q111	D5	
* Q114	B5	
Q115	C6	
Q116	D2	
Q117	D2	
Q118	D6	
R104	C6	
* R105	C5	
R106	C6	
R107	C6	
R108	C6	
* R109	A6	
* R116	C5	
R117	D6	
R118	D6	
* R129	C6	
R136	B2	
* R137	D6	
* R138	D6	
* R142	A6	
* R151	B6	
* R152	A5	
* R153	A6	
* R154	A5	
* R155	A6	
* R156	A6	
* R157	A6	
* R158	A6	
* R160	B6	
* R161	A6	
* R162	A6	
* R163	B5	
* R164	A5	
* R165	A5	
R166	C6	
R167	C6	
R169	B6	
R170	B6	
R171	B5	
R172	B5	
R173	D2	
* R174	C6	
* R175	C6	
* R176	C6	
* R177	C6	
* R178	C6	
R179	D2	
R180	D2	
R181	D2	
* R182	C6	
* R183	C6	
* R200	D1	
* R201	D2	
* R202	D2	
* R203	C2	
R204	B3	
R205	B3	
* R206	D2	
R207	B3	
R208	B3	
R209	B2	
R211	B2	
R212	B2	
R224	A1	
* R225	D1	
R226	A1	
R227	A1	
* R229	A1	
* R230	B1	
* R231	B1	
* R232	B1	
* R233	B1	
* R234	B1	
R241	B1	
R242	B1	
R243	B1	
R244	B1	
R245	B1	
R246	A1	
* R247	C1	
* R248	D1	
* R249	C1	
* R250	D1	
* R251	C1	
* R252	C1	
* R256	B2	
* R257	C2	
* R258	D1	
* R259	C2	
* R261	B2	
* R262	B2	
* R263	B2	
* R264	B2	
* R265	D1	
* R266	D1	
* R267	B1	
* R268	C1	
* R269	D1	
R270	B3	
R271	B3	
R272	B3	
R273	B3	
R274	B2	
R275	B2	
R276	B2	
R277	B2	
* R278	A1	
* R279	A1	
* R280	A1	
* R301	D4	

4-3. PRINTED WIRING BOARDS

no mark : side A
* mark : side B

* R302	D4	
* R401	C5	
* R402	C5	
* R403	C5	
* R404	C5	
R405	C1	
R406	C1	
R407	B1	
R408	B1	
R409	B1	
R410	B1	
R411	C1	
R413	C1	
R414	C1	
R415	D1	
R416	D1	
R417	D1	
R418	D1	
R419	D1	
R420	D1	
* R422	B5	
* R423	B5	
* R424	B5	
* R425	B5	
* R426	B5	
* R427	B5	
* R428	B5	
* R429	B5	
* R430	B5	
* R431	C5	
* R432	B5	
* R433	C5	
* R434	B5	
* R435	C5	
* R436	B5	
* R437	C5	
* R438	C5	
* R439	C5	
* R440	C5	
* R441	C5	
* R442	C5	
* R443	C5	
* R444	C5	
* R445	B4	
* R446	C5	
* R447	C5	
* R448	C5	
* R449	C5	
R450	C1	
* R451	B5	
R452	D1	
R453	C2	
R454	C2	
R455	C2	
R456	C1	
R457	C1	
R458	B1	
R459	C1	
R501	B3	
R502	B3	
R503	B3	
R504	B3	
R505	B3	
R506	A4	
R507	B4	
R508	A4	
R509	B4	
R510	A4	
R511	A4	
R512	B4	
R513	A4	
R514	B4	
R515	A4	
R516	B4	
R517	B4	
R518	D4	
R519	D4	
R520	D4	
R521	D4	
R522	D4	
R523	D4	
R524	D4	
R525	C3	
R526	B5	
R528	B3	
R529	D3	
R531	B3	
R532	C3	
R534	C3	
R536	D4	
R537	C3	
R538	D5	
R539	D5	
R540	D3	
R541	D3	
R542	B3	
R543	B2	
R544	B3	
R545	B2	
R546	D3	
R547	D3	
R548	D3	
R549	D3	
R550	D3	
R551	D5	
R552	C3	
R553	B3	
* R554	C4	
SE201	C2	
TH401	D1	
TH402	D1	
TH403	D1	
TH404	D1	
* X201	C1	
X401	C2	
X503	D4	

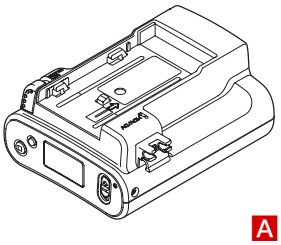
NOTE

5. REPAIR PARTS LIST

NOTE: Characters A to Z of the electrical parts list indicate location of exploded views in which the desired part is shown.

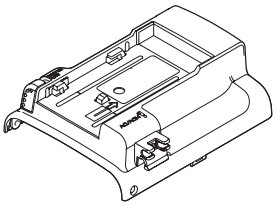
Link

EXPLODED VIEWS



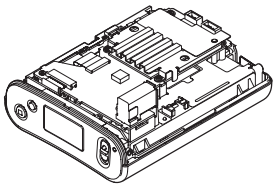
A

OVERALL ASSEMBLY



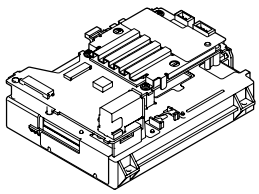
B

BOTTOM CASE BLOCK



C

MAIN BLOCK



D

HDD CASE BLOCK

Link

ELECTRICAL PARTS LIST

ACCESSORIES

- FP-431 FLEXIBLE BOARD D
- LC-093 BOARD C
- HD035 BOARD D
- SW-492 BOARD D

5. REPAIR PARTS LIST

(ENGLISH)

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- CAPACITORS:
  uF: µF
- COILS
  uH: µH
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

(JAPANESE)

【使用上の注意】

- ここに記載されている部品は，補修用部品であるため，回路図及びセットに付いている部品と異なる場合があります。
- −XX, −Xは標準化部品のため，セットに付いている部品と異なる場合があります。
- *印の部品は常備在庫しておりません。
- コンデンサの単位でuFはμFを示します。
- 抵抗の単位Ωは省略してあります。
  金　　被：金属被膜抵抗。
  サンキン：酸化金属被膜抵抗。
- インダクタの単位でuHはμHを示します。
- 半導体の名称でuA..., uPA..., uPB..., uPC..., uPD...等はそれぞれμA..., μPA..., μPB..., μPC..., μPD...を示します。

お願い
図面番号で部品を指定するときは基板名又はブロックを併せて指定してください。

⚠印の部品，または⚠印付の点線で囲まれた部品は，安全性を維持するために，重要な部品です。
従って交換時は，必ず指定の部品を使用してください。

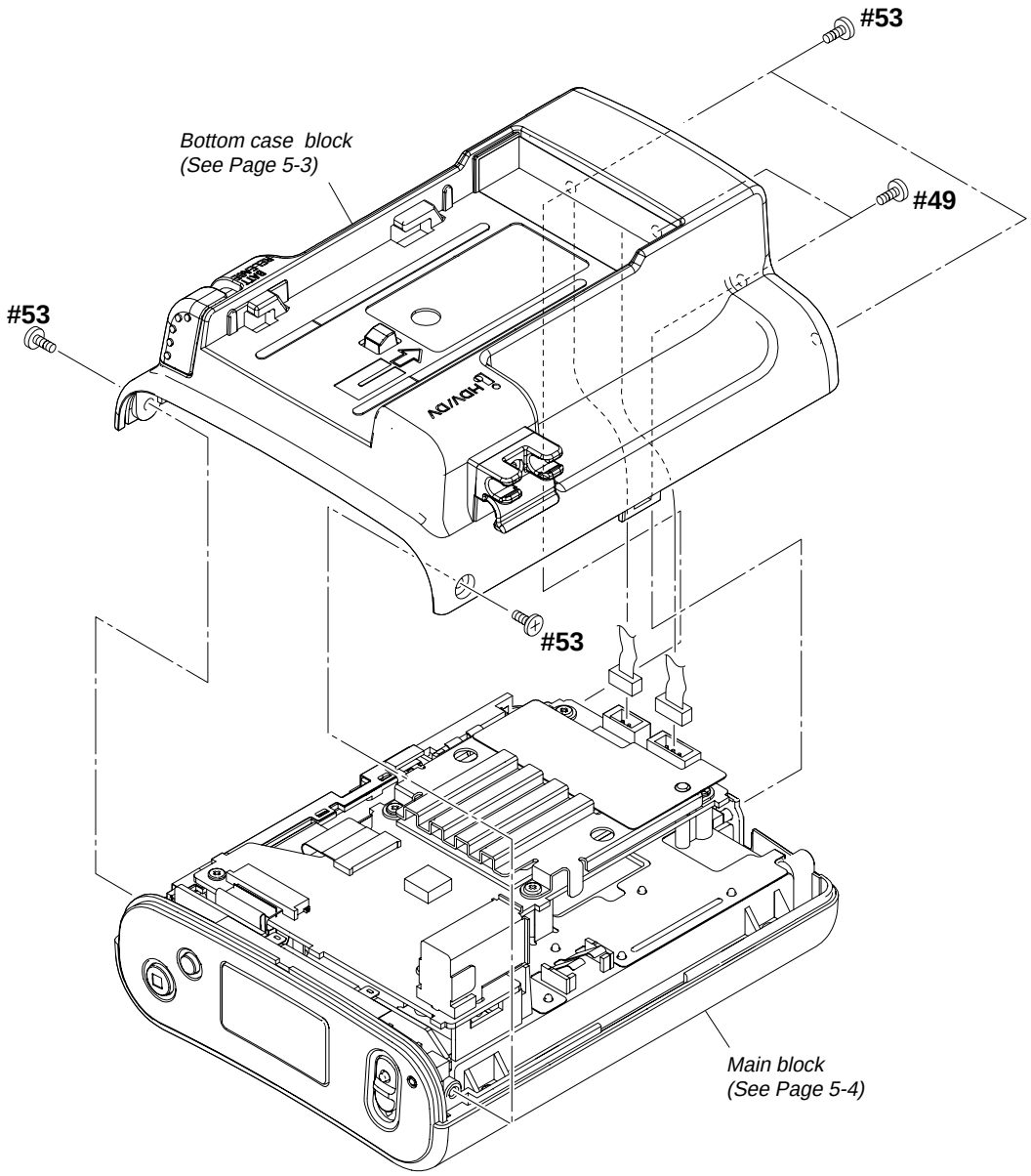
- Abbreviation
  AR　: Argentine model
  AUS : Australian model
  BR　: Brazilian model
  CH　: Chinese model
  CND : Canadian model
  EE　: East European model
  HK　: Hong Kong model
  J　　: Japanese model
  JE　: Tourist model
  KR　: Korea model
  NE　: North European model

5. REPAIR PARTS LIST

DISASSEMBLY HARDWARE LIST

5-1. EXPLODED VIEWS

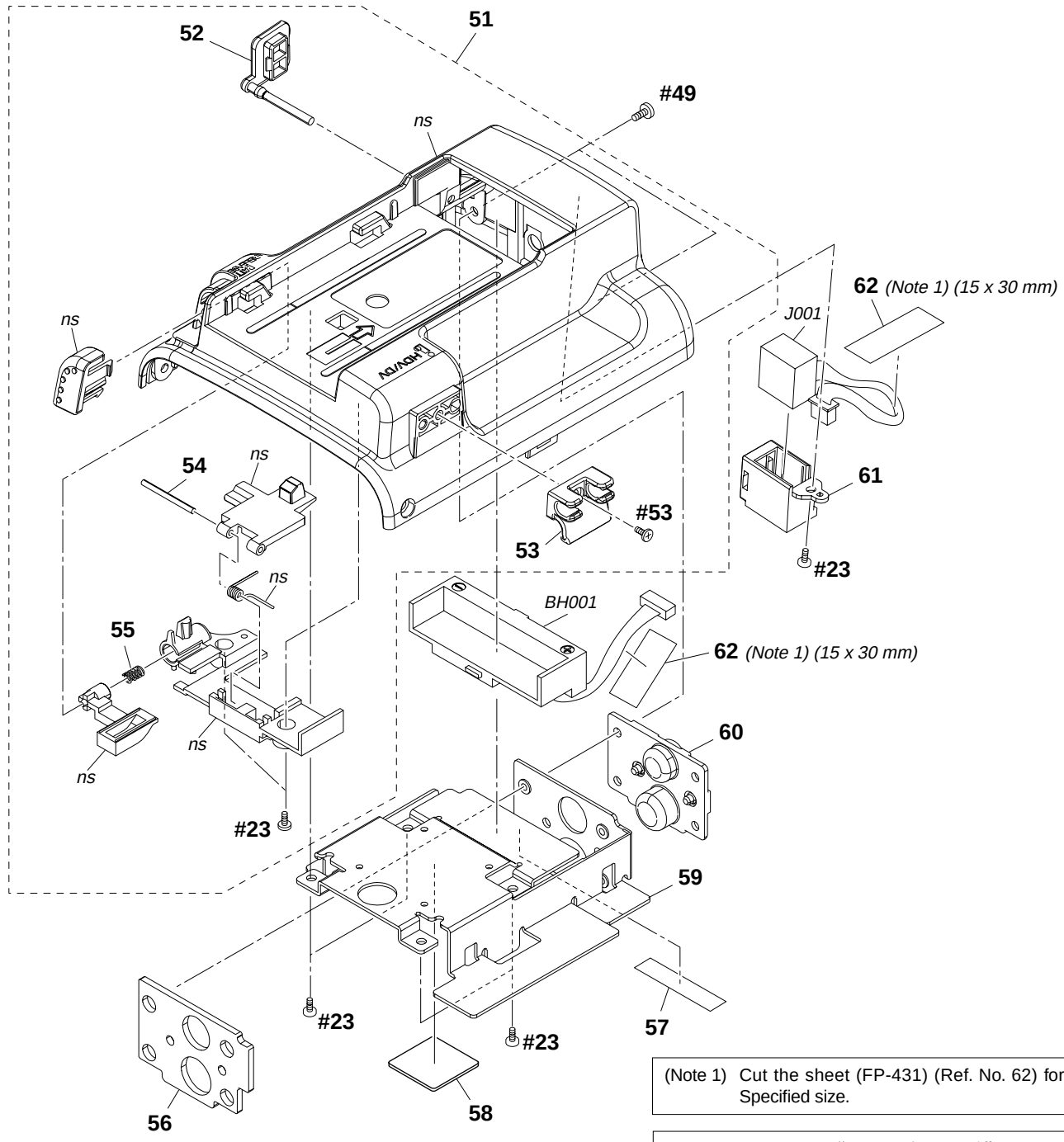
5-1-1. OVERALL ASSEMBLY



Ref. No.	Part No.	Description
#49	2-630-005-31	SCREW (M2), NEW TRUSTER, P2 (Black)
#53	3-080-206-21	SCREW, TAPPING, P2 (Black)

5-1-2. BOTTOM CASE BLOCK

ns: not supplied



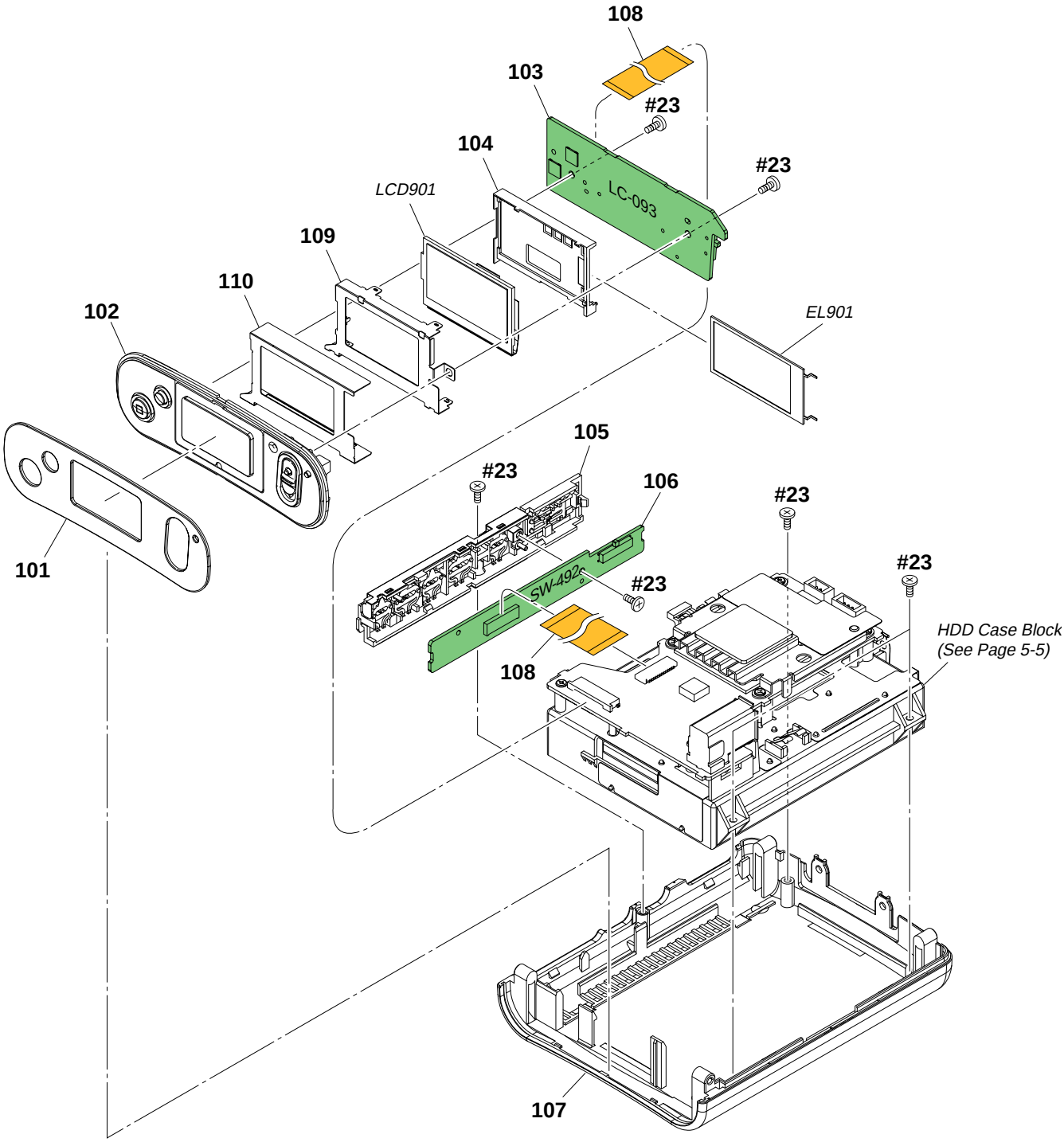
(Note 1) Cut the sheet (FP-431) (Ref. No. 62) for Specified size.

(Note 1) 図面番号62“SHEET (FP−431)”は，指示の寸法に切って使用してください。

• Refer to page 5-1 for mark ⚠.

Ref. No.	Part No.	Description
51	X-2149-016-1	BOTTOM CASE ASSY
52	2-697-897-01	COVER, DC-IN
53	2-890-916-01	CLAMP, CABLE
54	3-968-770-01	SHAFT, BT
55	3-968-771-01	SPRING, COMPRESSION
* 56	2-892-446-01	SHEET (PORON), PROTECTION
* 57	2-895-637-01	SHEET (HEATSINK A)
* 58	2-890-918-01	SHEET, HEAT CONDUCTION
* 59	2-697-899-01	HEATSINK A
60	2-697-901-01	TRIPOD BRACKET
* 61	2-697-898-01	HOLDER, DC-IN
* 62	2-897-922-01	SHEET (FP-431) (Note 1)
⚠BH001	1-694-411-31	TERMINAL BOARD, BATTERY
⚠J001	1-818-356-11	DC-IN CONNECTOR (DC-IN)
#23	3-080-204-11	SCREW, TAPPING, P2 (Black)
#49	2-630-005-31	SCREW(M2), NFW TRUSTER, P2 (Black)
#53	3-080-206-21	SCREW, TAPPING, P2 (Black)

5-1-3. MAIN BLOCK

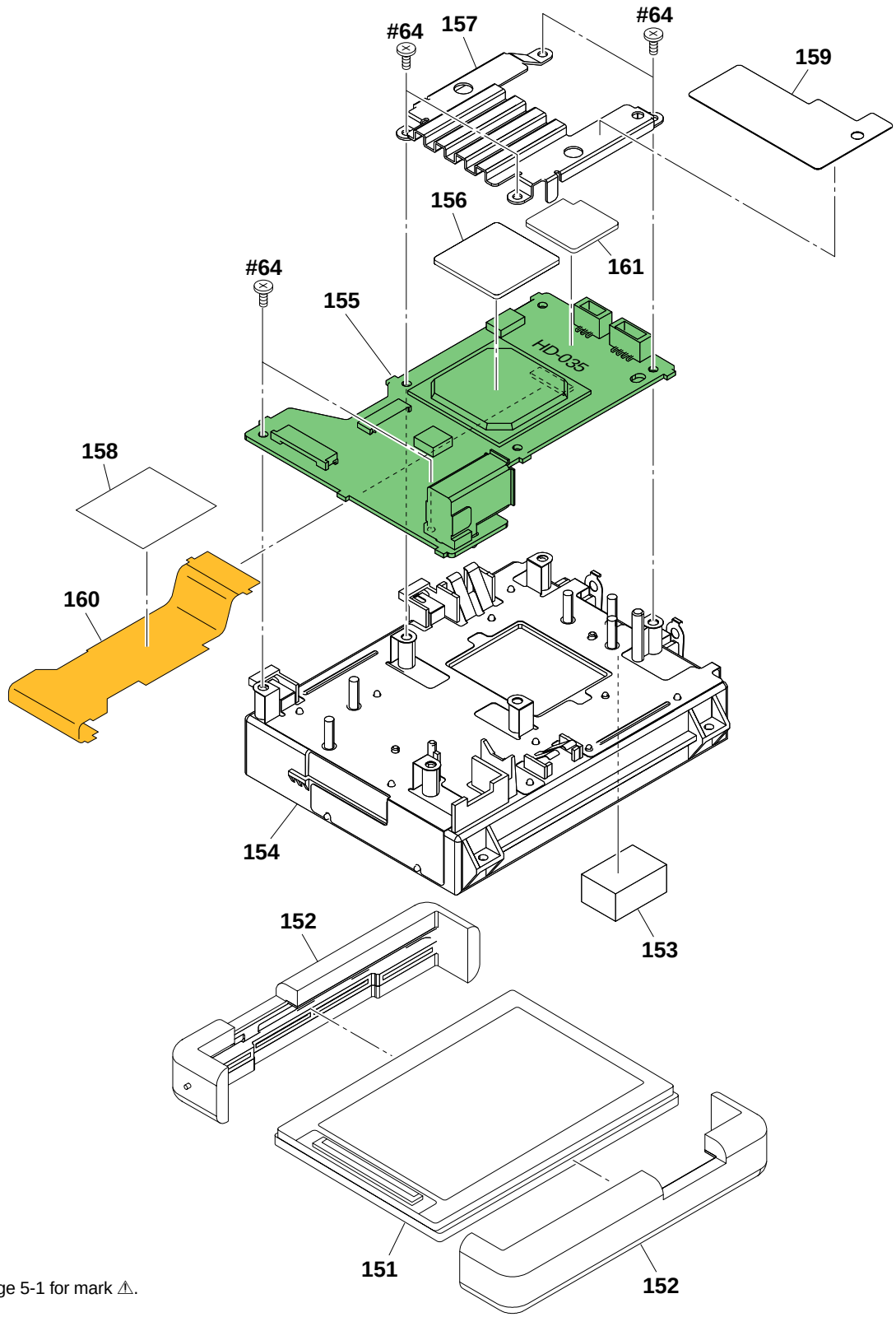


• Refer to page 5-1 for mark ⚠.

Ref. No.	Part No.	Description
101	2-697-878-01	TOP PLATE
102	X-2149-015-1	LCD CASE ASSY
103	A-1220-958-A	LC-093 BOARD, COMPLETE
104	X-2149-846-1	FRAME (LCD) ASSY
105	X-2149-014-1	BUTTON CASE ASSY
106	A-1220-947-A	SW-492 BOARD, COMPLETE
107	X-2149-591-1	TOP CASE ASSY

Ref. No.	Part No.	Description
108	1-833-689-11	CABLE, FLEXIBLE FLAT (FBH-002)
* 109	2-697-883-01	SHIELD CASE, LCD
* 110	3-093-139-01	SHEET (LCD)
⚠EL901	1-805-551-11	ELEMENT, EL
LCD901	1-805-549-11	DISPLAY PANEL, LIQUID CRYSTAL
#23	3-080-204-11	SCREW, TAPPING, P2 (Black)

5-1-4. HDD CASE BLOCK



• Refer to page 5-1 for mark ⚠.

Ref. No.	Part No.	Description
⚠ 151	1-797-659-11	HDD (MK6008GAH-60GB)
152	2-697-545-01	DAMPER, DM
* 153	2-673-770-01	GASKET (D)
154	X-2149-013-1	HDD CASE ASSY
155	A-1222-326-A	HD-035 PC BOARD, COMPLETE (SERVICE)
* 156	2-890-918-01	SHEET, HEAT CONDUCTION

Ref. No.	Part No.	Description
* 157	2-697-900-01	HEATSINK B
* 158	2-897-922-01	SHEET (FP-431)
* 159	2-894-875-01	SHEET (HD-035)
160	A-1173-667-A	FP-431 FLEXIBLE BOARD, COMPLETE
* 161	3-093-140-01	BUS (HD-035), SHEET
#64	2-666-551-21	SCREW, TAPPING, P2 (Silver)

5-2. ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description			
	A-1173-667-A	FP-431 FLEXIBLE BOARD, COMPLETE			
		**********			
		< RESISTOR >			
R001	1-218-929-11	RES-CHIP	10	5%	1/16W
R002	1-218-929-11	RES-CHIP	10	5%	1/16W
R003	1-218-929-11	RES-CHIP	10	5%	1/16W
R004	1-218-929-11	RES-CHIP	10	5%	1/16W
R005	1-218-929-11	RES-CHIP	10	5%	1/16W
R006	1-218-929-11	RES-CHIP	10	5%	1/16W
R007	1-218-929-11	RES-CHIP	10	5%	1/16W
R008	1-218-929-11	RES-CHIP	10	5%	1/16W
R009	1-218-929-11	RES-CHIP	10	5%	1/16W
R010	1-218-929-11	RES-CHIP	10	5%	1/16W
R011	1-218-929-11	RES-CHIP	10	5%	1/16W
R012	1-218-929-11	RES-CHIP	10	5%	1/16W
R013	1-218-929-11	RES-CHIP	10	5%	1/16W
R014	1-218-929-11	RES-CHIP	10	5%	1/16W
R015	1-218-929-11	RES-CHIP	10	5%	1/16W
R016	1-218-929-11	RES-CHIP	10	5%	1/16W
	A-1222-326-A	HD-035 PC BOARD,COMPLETE (SERVICE)			
		**********			
		< CAPACITOR >			
C101	1-164-860-11	CERAMIC CHIP	27PF	5%	50V
C102	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C103	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C104	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C105	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C106	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C107	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C108	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C109	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C110	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C111	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C112	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C113	1-112-692-11	CERAMIC CHIP	1000PF	5%	50V
C114	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C116	1-112-717-91	CERAMIC CHIP	1uF	10%	6.3V
C119	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C120	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C126	1-112-717-91	CERAMIC CHIP	1uF	10%	6.3V
C127	1-100-966-91	CERAMIC CHIP	10uF	20%	10V
C132	1-165-989-11	CERAMIC CHIP	10uF	10%	6.3V
C134	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C135	1-112-717-91	CERAMIC CHIP	1uF	10%	6.3V
C136	1-165-989-11	CERAMIC CHIP	10uF	10%	6.3V
C137	1-165-989-11	CERAMIC CHIP	10uF	10%	6.3V
C138	1-112-717-91	CERAMIC CHIP	1uF	10%	6.3V
C139	1-100-966-91	CERAMIC CHIP	10uF	20%	10V
C140	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C141	1-112-717-91	CERAMIC CHIP	1uF	10%	6.3V
C142	1-112-717-91	CERAMIC CHIP	1uF	10%	6.3V
C143	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C145	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C146	1-112-746-11	CERAMIC CHIP	4.7uF	10%	6.3V
C147	1-112-746-11	CERAMIC CHIP	4.7uF	10%	6.3V
C148	1-112-746-11	CERAMIC CHIP	4.7uF	10%	6.3V
C149	1-112-746-11	CERAMIC CHIP	4.7uF	10%	6.3V
C150	1-100-966-91	CERAMIC CHIP	10uF	20%	10V
C151	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C152	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C153	1-112-692-11	CERAMIC CHIP	1000PF	5%	50V
C154	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C155	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C156	1-164-860-11	CERAMIC CHIP	27PF	5%	50V
C157	1-127-710-11	ELECT CHIP	47uF	20%	6.3V
C158	1-127-710-11	ELECT CHIP	47uF	20%	6.3V
C162	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C163	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C164	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C165	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C166	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C167	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C168	1-112-746-11	CERAMIC CHIP	4.7uF	10%	6.3V
C169	1-112-746-11	CERAMIC CHIP	4.7uF	10%	6.3V
C170	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C171	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C201	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C202	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C203	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C204	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C205	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C206	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C207	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C208	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C209	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C210	1-112-717-91	CERAMIC CHIP	1uF	10%	6.3V
C211	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C212	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C213	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C214	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C215	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C216	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C217	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C218	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C219	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C220	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C221	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C222	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C223	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C224	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C239	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C241	1-112-746-11	CERAMIC CHIP	4.7uF	10%	6.3V
C243	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C301	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C302	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C303	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C304	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C305	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V

Ref. No.	Part No.	Description			
C306	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C307	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C308	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C309	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C310	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C311	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C312	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C313	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C314	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C315	1-112-746-11	CERAMIC CHIP	4.7uF	10%	6.3V
C401	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C402	1-165-989-11	CERAMIC CHIP	10uF	10%	6.3V
C403	1-164-852-11	CERAMIC CHIP	12PF	5%	50V
C404	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C405	1-164-852-11	CERAMIC CHIP	12PF	5%	50V
C406	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C407	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C408	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C409	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C410	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C411	1-112-717-91	CERAMIC CHIP	1uF	10%	6.3V
C412	1-164-933-11	CERAMIC CHIP	220PF	10%	50V
C413	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C414	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C415	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C416	1-112-746-11	CERAMIC CHIP	4.7uF	10%	6.3V
C417	1-112-746-11	CERAMIC CHIP	4.7uF	10%	6.3V
C418	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C504	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C510	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C517	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C522	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C527	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C532	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C536	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C537	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C538	1-112-746-11	CERAMIC CHIP	4.7uF	10%	6.3V
C539	1-164-933-11	CERAMIC CHIP	220PF	10%	50V
C543	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C545	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C546	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C548	1-112-746-11	CERAMIC CHIP	4.7uF	10%	6.3V
C549	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C550	1-112-746-11	CERAMIC CHIP	4.7uF	10%	6.3V
C551	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C552	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C553	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C554	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C555	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C556	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C557	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C558	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C559	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C560	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C561	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C562	1-165-989-11	CERAMIC CHIP	10uF	10%	6.3V
C563	1-165-989-11	CERAMIC CHIP	10uF	10%	6.3V
C564	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C565	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C566	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
CN101	1-691-550-11	PIN, CONNECTOR (1.5MM) (SMD) 3P			
CN102	1-573-290-21	PIN, CONNECTOR (1.5MM) (SMD) 4P			
* CN201	1-816-648-51	FFC/FPC CONNECTOR (LIF) 20P			
* CN203	1-691-358-51	CONNECTOR, FFC/FPC (ZIF) 20P			
CN401	1-815-334-51	CONNECTOR, FPC (ZIF) 51P			
CN402	1-817-382-11	CONNECTOR, I-LINK (6P)			
		< DIODE >			
D109	6-501-124-01	DIODE RSX101VA-30TR			
⚠ D111	6-501-272-01	DIODE RB520CS-30T2R			
D113	6-501-124-01	DIODE RSX101VA-30TR			
D115	8-719-158-49	DIODE RD12SB2			
D116	8-719-158-49	DIODE RD12SB2			
⚠ D119	6-501-272-01	DIODE RB520CS-30T2R			
D123	8-719-056-54	DIODE MAZS068008SO			
		< FUSE >			
⚠ F101	1-576-406-11	FUSE (1.4A/32V)			
⚠ F102	1-576-406-11	FUSE (1.4A/32V)			
		< FERRITE BEAD >			
FB102	1-400-619-11	BEAD, FERRITE (CHIP) (1608)			
FB103	1-400-619-11	BEAD, FERRITE (CHIP) (1608)			
FB104	1-400-619-11	BEAD, FERRITE (CHIP) (1608)			
FB106	1-400-619-11	BEAD, FERRITE (CHIP) (1608)			
FB108	1-400-619-11	BEAD, FERRITE (CHIP) (1608)			
FB109	1-400-619-11	BEAD, FERRITE (CHIP) (1608)			
FB112	1-400-619-11	BEAD, FERRITE (CHIP) (1608)			
* FB113	1-481-196-21	FERRITE, EMI (SMD) (3216)			
FB201	1-400-915-21	INDUCTOR (EMI FERRITE) (2012)			
FB301	1-400-915-21	INDUCTOR (EMI FERRITE) (2012)			
FB401	1-400-915-21	INDUCTOR (EMI FERRITE) (2012)			
FB402	1-400-915-21	INDUCTOR (EMI FERRITE) (2012)			
FB403	1-400-915-21	INDUCTOR (EMI FERRITE) (2012)			
FB404	1-400-331-11	FERRITE, EMI (SMD) (1005)			
FB405	1-400-331-11	FERRITE, EMI (SMD) (1005)			
FB406	1-400-619-11	BEAD, FERRITE (CHIP) (1608)			
FB501	1-400-915-21	INDUCTOR (EMI FERRITE) (2012)			
FB502	1-400-915-21	INDUCTOR (EMI FERRITE) (2012)			
FB504	1-400-915-21	INDUCTOR (EMI FERRITE) (2012)			
FB505	1-400-331-11	FERRITE, EMI (SMD) (1005)			
FB506	1-400-331-11	FERRITE, EMI (SMD) (1005)			
		< FLUORESCENT INDICATOR TUBE >			
FL401	1-234-939-21	FILTER, EMI REMOVAL (SMD)			
FL402	1-234-939-21	FILTER, EMI REMOVAL (SMD)			
FL403	1-234-939-21	FILTER, EMI REMOVAL (SMD)			
		< IC >			
⚠ IC101	6-707-357-01	IC LTC3728LXCUH#TR-R5			

• Refer to page 5-1 for mark ⚠.

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Ref. No.	Part No.	Description			
* IC105	6-710-663-01	IC BU4325FVE-TR			
IC106	6-704-257-01	IC TK11130CSCL-G			
* IC110	6-710-663-01	IC BU4325FVE-TR			
* IC114	6-709-667-01	IC S-812C33BPI-C4NTFG			
IC115	8-759-058-58	IC TC7S04FU (TE85R)			
IC116	8-759-082-59	IC TC7W32FU			
IC202	6-704-006-01	IC BR24L64F-WE2			
IC203	(Not supplied)	IC M38049FFHHP-W4			
IC212	8-759-058-62	IC TC7S08FU (TE85R)			
IC213	1-805-863-11	IC LT1790BCS6-2.5#TR			
* IC301	6-710-662-01	IC K4M513233C-DN75T			
* IC401	6-710-683-01	IC TSB41AB2PAPR			
IC402	8-759-058-62	IC TC7S08FU (TE85R)			
* IC501	6-710-681-01	IC IND60C32			
IC503	(Not supplied)	IC AT45DB081B-CNU			
		< COIL >			
L101	1-456-019-11	COIL, CHOKE	4.7uH		
L102	1-456-019-11	COIL, CHOKE	4.7uH		
		< LINE FILTER >			
* LF101	1-457-217-21	COMMON MODE CHOKE COIL			
LF403	1-457-064-12	COMMON MODE CHOKE COIL			
		< TRANSISTOR >			
Q101	6-551-067-01	TRANSISTOR	RTF015P02TL		
Q102	6-550-566-01	TRANSISTOR	DTC115TMT2L		
Q103	6-550-566-01	TRANSISTOR	DTC115TMT2L		
Q104	6-551-067-01	TRANSISTOR	RTF015P02TL		
⚠ Q105	8-729-054-68	TRANSISTOR	FDS6986S		
Q106	6-550-119-01	TRANSISTOR	DTC144EMT2L		
Q107	8-729-928-34	TRANSISTOR	DTA124EE-TL		
Q108	6-550-354-01	TRANSISTOR	RTQ035P02TR		
Q109	6-550-566-01	TRANSISTOR	DTC115TMT2L		
Q110	6-550-354-01	TRANSISTOR	RTQ035P02TR		
Q111	6-550-354-01	TRANSISTOR	RTQ035P02TR		
⚠ Q114	8-729-054-68	TRANSISTOR	FDS6986S		
Q115	6-551-346-01	TRANSISTOR	2SK3541T2L		
Q116	6-550-119-01	TRANSISTOR	DTC144EMT2L		
Q117	6-551-067-01	TRANSISTOR	RTF015P02TL		
Q118	6-550-354-01	TRANSISTOR	RTQ035P02TR		
		< RESISTOR >			
R104	1-218-990-11	SHORT CHIP	0		
R106	1-208-696-11	RES-CHIP	3.6K	0.5%	1/16W
R107	1-208-893-11	RES-CHIP	1.8K	0.5%	1/16W
R117	1-218-978-11	RES-CHIP	120K	5%	1/16W
R118	1-208-928-11	RES-CHIP	51K	0.5%	1/16W
R129	1-218-989-11	RES-CHIP	1M	5%	1/16W
R136	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R137	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R138	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R142	1-208-905-11	RES-CHIP	5.6K	0.5%	1/16W
R151	1-208-635-11	RES-CHIP	10	0.5%	1/16W
R152	1-218-990-11	SHORT CHIP	0		
R158	1-208-911-11	RES-CHIP	10K	0.5%	1/16W

Ref. No.	Part No.	Description			
R160	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R161	1-208-911-11	RES-CHIP	10K	0.5%	1/16W
R162	1-208-884-81	RES-CHIP	750	0.5%	1/16W
R163	1-208-918-11	RES-CHIP	20K	0.5%	1/16W
R164	1-208-712-11	RES-CHIP	16K	0.5%	1/16W
R165	1-218-990-11	SHORT CHIP	0		
R166	1-218-974-11	RES-CHIP	56K	5%	1/16W
R167	1-208-713-11	RES-CHIP	18K	0.5%	1/16W
* R169	1-245-685-21	RES-CHIP	0.051	5%	1/8W
* R170	1-245-685-21	RES-CHIP	0.051	5%	1/8W
* R171	1-245-685-21	RES-CHIP	0.051	5%	1/8W
* R172	1-245-685-21	RES-CHIP	0.051	5%	1/8W
R173	1-216-789-11	RES-CHIP	2.2	5%	1/10W
R174	1-208-957-11	RES-CHIP	820K	0.5%	1/16W
R175	1-218-974-11	RES-CHIP	56K	5%	1/16W
R176	1-218-974-11	RES-CHIP	56K	5%	1/16W
R177	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R178	1-208-943-11	RES-CHIP	220K	0.5%	1/16W
R179	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R180	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R181	1-208-927-11	RES-CHIP	47K	0.5%	1/16W
R182	1-208-943-11	RES-CHIP	220K	0.5%	1/16W
R183	1-218-982-11	RES-CHIP	270K	5%	1/16W
R200	1-208-911-11	RES-CHIP	10K	0.5%	1/16W
R201	1-208-695-11	RES-CHIP	3.3K	0.5%	1/16W
R202	1-208-695-11	RES-CHIP	3.3K	0.5%	1/16W
R203	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R204	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R205	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R206	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R207	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R208	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R209	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R211	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R212	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R224	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R225	1-208-911-11	RES-CHIP	10K	0.5%	1/16W
R226	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R227	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R229	1-208-695-11	RES-CHIP	3.3K	0.5%	1/16W
R230	1-208-695-11	RES-CHIP	3.3K	0.5%	1/16W
R231	1-208-695-11	RES-CHIP	3.3K	0.5%	1/16W
R232	1-208-695-11	RES-CHIP	3.3K	0.5%	1/16W
R233	1-208-695-11	RES-CHIP	3.3K	0.5%	1/16W
R234	1-208-695-11	RES-CHIP	3.3K	0.5%	1/16W
R241	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R242	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R243	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R244	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R245	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R246	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R252	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R256	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R258	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R259	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R263	1-218-990-11	SHORT CHIP	0		
R264	1-218-990-11	SHORT CHIP	0		

• Refer to page 5-1 for mark ⚠.

Ref. No.	Part No.	Description			
R265	1-218-990-11	SHORT CHIP	0		
R266	1-218-990-11	SHORT CHIP	0		
R267	1-208-943-11	RES-CHIP	220K	0.5%	1/16W
R268	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R269	1-208-911-11	RES-CHIP	10K	0.5%	1/16W
R270	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R271	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R272	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R273	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R274	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R275	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R276	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R277	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R278	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R279	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R280	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R301	1-208-647-11	RES-CHIP	33	0.5%	1/16W
R302	1-208-647-11	RES-CHIP	33	0.5%	1/16W
R401	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R402	1-208-911-11	RES-CHIP	10K	0.5%	1/16W
R403	1-208-911-11	RES-CHIP	10K	0.5%	1/16W
R404	1-218-962-11	RES-CHIP	5.6K	5%	1/16W
R406	1-218-990-11	SHORT CHIP	0		
R408	1-218-990-11	SHORT CHIP	0		
R410	1-218-990-11	SHORT CHIP	0		
R411	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R413	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R414	1-208-683-11	RES-CHIP	1K	0.5%	1/16W
R415	1-208-702-11	RES-CHIP	6.2K	0.5%	1/16W
R416	1-218-938-11	RES-CHIP	56	5%	1/16W
R417	1-218-938-11	RES-CHIP	56	5%	1/16W
R418	1-220-191-81	RES-CHIP	5.1K	5%	1/16W
R419	1-218-938-11	RES-CHIP	56	5%	1/16W
R420	1-218-938-11	RES-CHIP	56	5%	1/16W
R422	1-218-935-11	RES-CHIP	33	5%	1/16W
R423	1-218-935-11	RES-CHIP	33	5%	1/16W
R424	1-218-935-11	RES-CHIP	33	5%	1/16W
R425	1-218-935-11	RES-CHIP	33	5%	1/16W
R426	1-218-935-11	RES-CHIP	33	5%	1/16W
R427	1-218-935-11	RES-CHIP	33	5%	1/16W
R428	1-218-935-11	RES-CHIP	33	5%	1/16W
R429	1-218-935-11	RES-CHIP	33	5%	1/16W
R430	1-218-935-11	RES-CHIP	33	5%	1/16W
R431	1-218-935-11	RES-CHIP	33	5%	1/16W
R432	1-218-935-11	RES-CHIP	33	5%	1/16W
R433	1-218-935-11	RES-CHIP	33	5%	1/16W
R434	1-218-935-11	RES-CHIP	33	5%	1/16W
R435	1-218-935-11	RES-CHIP	33	5%	1/16W
R436	1-218-935-11	RES-CHIP	33	5%	1/16W
R437	1-218-935-11	RES-CHIP	33	5%	1/16W
R438	1-218-935-11	RES-CHIP	33	5%	1/16W
R439	1-218-935-11	RES-CHIP	33	5%	1/16W
R440	1-218-935-11	RES-CHIP	33	5%	1/16W
R441	1-218-935-11	RES-CHIP	33	5%	1/16W
R442	1-218-935-11	RES-CHIP	33	5%	1/16W
R443	1-218-935-11	RES-CHIP	33	5%	1/16W
R444	1-218-935-11	RES-CHIP	33	5%	1/16W

Ref. No.	Part No.	Description			
R445	1-218-935-11	RES-CHIP	33	5%	1/16W
R446	1-218-935-11	RES-CHIP	33	5%	1/16W
R447	1-218-935-11	RES-CHIP	33	5%	1/16W
R448	1-218-935-11	RES-CHIP	33	5%	1/16W
R449	1-218-935-11	RES-CHIP	33	5%	1/16W
R450	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R451	1-218-935-11	RES-CHIP	33	5%	1/16W
R452	1-208-663-11	RES-CHIP	150	0.5%	1/16W
R453	1-218-953-11	RES-CHIP	1K	5%	1/16W
R454	1-218-990-11	SHORT CHIP	0		
R455	1-218-990-11	SHORT CHIP	0		
R456	1-208-855-81	RES-CHIP	47	0.5%	1/16W
R457	1-218-990-11	SHORT CHIP	0		
R458	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R459	1-208-911-11	RES-CHIP	10K	0.5%	1/16W
R460	1-218-929-11	RES-CHIP	10	5%	1/16W
R501	1-218-990-11	SHORT CHIP	0		
R502	1-218-990-11	SHORT CHIP	0		
R503	1-218-990-11	SHORT CHIP	0		
R504	1-218-990-11	SHORT CHIP	0		
R505	1-218-990-11	SHORT CHIP	0		
R506	1-218-990-11	SHORT CHIP	0		
R507	1-218-990-11	SHORT CHIP	0		
R508	1-218-990-11	SHORT CHIP	0		
R509	1-218-990-11	SHORT CHIP	0		
R510	1-218-990-11	SHORT CHIP	0		
R511	1-218-990-11	SHORT CHIP	0		
R512	1-218-990-11	SHORT CHIP	0		
R513	1-218-990-11	SHORT CHIP	0		
R514	1-218-990-11	SHORT CHIP	0		
R515	1-218-990-11	SHORT CHIP	0		
R516	1-218-990-11	SHORT CHIP	0		
R517	1-218-990-11	SHORT CHIP	0		
R518	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R520	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R521	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R522	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R523	1-218-990-11	SHORT CHIP	0		
R524	1-218-990-11	SHORT CHIP	0		
R525	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R526	1-208-923-11	RES-CHIP	33K	0.5%	1/16W
R528	1-208-911-11	RES-CHIP	10K	0.5%	1/16W
R529	1-208-911-11	RES-CHIP	10K	0.5%	1/16W
R531	1-208-911-11	RES-CHIP	10K	0.5%	1/16W
R532	1-208-911-11	RES-CHIP	10K	0.5%	1/16W
R534	1-208-911-11	RES-CHIP	10K	0.5%	1/16W
R536	1-218-941-81	RES-CHIP	100	5%	1/16W
R537	1-208-911-11	RES-CHIP	10K	0.5%	1/16W
R538	1-218-990-11	SHORT CHIP	0		
R539	1-218-990-11	SHORT CHIP	0		
R540	1-218-990-11	SHORT CHIP	0		
R541	1-218-990-11	SHORT CHIP	0		
R542	1-218-990-11	SHORT CHIP	0		
R543	1-218-990-11	SHORT CHIP	0		
R544	1-218-990-11	SHORT CHIP	0		
R545	1-218-990-11	SHORT CHIP	0		
R546	1-218-990-11	SHORT CHIP	0		

HD-035 **LC-093** **SW-492**

Ref. No.	Part No.	Description			
R547	1-218-990-11	SHORT CHIP	0		
R548	1-218-990-11	SHORT CHIP	0		
R549	1-218-990-11	SHORT CHIP	0		
R550	1-218-990-11	SHORT CHIP	0		
R551	1-218-953-11	RES-CHIP	1K	5%	1/16W
R552	1-218-990-11	SHORT CHIP	0		
R553	1-218-935-11	RES-CHIP	33	5%	1/16W
R554	1-218-935-11	RES-CHIP	33	5%	1/16W
		< G SENSOR >			
* SE201	1-478-556-12	3 AXIS ACCELEROMETOR			
		< THERMISTOR >			
TH401	1-805-726-11	THERMISTOR, POSITIVE			
TH402	1-805-726-11	THERMISTOR, POSITIVE			
TH403	1-805-726-11	THERMISTOR, POSITIVE			
TH404	1-805-726-11	THERMISTOR, POSITIVE			
		< VIBRATOR >			
X201	1-795-313-11	VIBRATOR, CERAMIC (8MHZ)			
X401	1-781-841-41	VIBRATOR, CRYSTAL (24.576MHZ)			
X503	1-813-856-11	OSCILLATOR, CRYSTAL (27MHZ)			
	A-1220-958-A	LC-093 BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C601	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C602	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C603	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C604	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C605	1-100-966-91	CERAMIC CHIP	10uF	20%	10V
⚠C606	1-112-062-91	CERAMIC CHIP	0.1uF	10%	100V
C607	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C608	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C609	1-100-352-91	CERAMIC CHIP	1uF	20%	16V
C610	1-100-352-91	CERAMIC CHIP	1uF	20%	16V
C611	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C612	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C613	1-100-352-91	CERAMIC CHIP	1uF	20%	16V
C614	1-100-352-91	CERAMIC CHIP	1uF	20%	16V
C615	1-100-352-91	CERAMIC CHIP	1uF	20%	16V
C616	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
		< CONNECTOR >			
* CN601	1-816-648-51	FFC/FPC CONNECTOR (LIF) 20P			
		< DIODE >			
D601	8-719-077-09	DIODE CL-196HR-CD-T			
D602	8-719-056-49	DIODE 1SS370 (TE85L)			
D603	6-500-852-01	DIODE DF2S6.8FS (TPL3)			
D604	6-500-852-01	DIODE DF2S6.8FS (TPL3)			
D605	6-500-852-01	DIODE DF2S6.8FS (TPL3)			

Ref. No.	Part No.	Description			
		< IC >			
⚠IC601	8-759-830-70	IC SM8142BD-G-EL			
		< COIL >			
L601	1-414-852-31	INDUCTOR	470uH		
L602	1-400-794-21	EMI FERRITE (SMD) (1608)			
		< RESISTOR >			
R601	1-208-671-11	RES-CHIP	330	0.5%	1/16W
R602	1-208-935-11	RES-CHIP	100K	0.5%	1/16W
R603	1-208-670-11	RES-CHIP	300	0.5%	1/16W
R605	1-208-952-11	RES-CHIP	510K	0.5%	1/16W
R606	1-218-971-11	RES-CHIP	33K	5%	1/16W
R607	1-218-971-11	RES-CHIP	33K	5%	1/16W
R608	1-218-971-11	RES-CHIP	33K	5%	1/16W
R609	1-218-971-11	RES-CHIP	33K	5%	1/16W
R610	1-218-971-11	RES-CHIP	33K	5%	1/16W
R611	1-218-971-11	RES-CHIP	33K	5%	1/16W
R612	1-218-971-11	RES-CHIP	33K	5%	1/16W
R613	1-218-971-11	RES-CHIP	33K	5%	1/16W
R614	1-218-971-11	RES-CHIP	33K	5%	1/16W
R615	1-218-971-11	RES-CHIP	33K	5%	1/16W
R616	1-218-971-11	RES-CHIP	33K	5%	1/16W
R617	1-218-971-11	RES-CHIP	33K	5%	1/16W
R618	1-218-971-11	RES-CHIP	33K	5%	1/16W
R624	1-218-948-11	RES-CHIP	390	5%	1/16W
R625	1-208-939-11	RES-CHIP	150K	0.5%	1/16W
R626	1-208-927-11	RES-CHIP	47K	0.5%	1/16W
R627	1-208-927-11	RES-CHIP	47K	0.5%	1/16W
R628	1-218-990-11	SHORT CHIP	0		
		< SWITCH >			
S601	1-786-685-31	SWITCH, TACTILE (STOP)			
S602	1-786-685-31	SWITCH, TACTILE (MENU)			
S603	1-771-731-21	SWITCH, SLIDE (REC)			
	A-1220-947-A	SW-492 BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C701	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C702	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C703	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C704	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C705	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C706	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C707	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C708	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
		< CONNECTOR >			
* CN701	1-816-648-51	FFC/FPC CONNECTOR (LIF) 20P			
		< DIODE >			
D701	8-719-083-91	DIODE EDZ TE61 6.8B			
D702	8-719-083-91	DIODE EDZ TE61 6.8B			

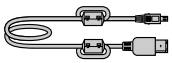
• Refer to page 5-1 for mark ⚠.

Ref. No.	Part No.	Description
D703	8-719-083-91	DIODE EDZ TE61 6.8B
D704	8-719-083-91	DIODE EDZ TE61 6.8B
D705	8-719-083-91	DIODE EDZ TE61 6.8B
D706	8-719-083-91	DIODE EDZ TE61 6.8B
D707	8-719-083-91	DIODE EDZ TE61 6.8B
D708	8-719-083-91	DIODE EDZ TE61 6.8B
		< SWITCH >
S701	1-771-487-11	SWITCH, SLIDE (POWER)
S702	1-786-685-31	SWITCH, TACTILE (PLAY)
S703	1-786-685-31	SWITCH, TACTILE (I◀◀)
S704	1-786-685-31	SWITCH, TACTILE (REPEAT)
S705	1-786-685-31	SWITCH, TACTILE (CAM LINK)
S706	1-786-685-31	SWITCH, TACTILE (▶▶I)

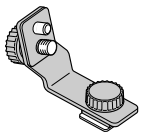
• E MODEL

Checking supplied accessories.

to J MODEL



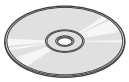
i.LINK cable
1-833-701-11



Shoe Adapter
X-2149-858-1

Other accessories

2-898-342-01 MANUAL, INSTRUCTION
(JAPANESE, ENGLISH, FRENCH, GERMAN, SPANISH, ITALIAN, SIMPLIFIED CHINESE)



CD-ROM manual
2-898-339-03

Instruction manual (PDF)

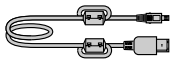
The CD-ROM supplied contains all of language version of the Instruction Manual in pdf for printing.

Note: The printed matter is not supplied. If required, please order it with the part number below.

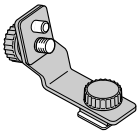
2-898-341-01 (JAPANESE)
2-898-341-11 (ENGLISH)
2-898-341-21 (FRENCH)
2-898-341-31 (SPANISH)
2-898-341-41 (ITALIAN)
2-898-341-51 (GERMAN)
2-898-341-61 (SIMPLIFIED CHINESE)

• J MODEL

付属品

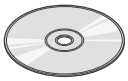


i.LINKケーブル
1-833-701-11



シューアダプター
X-2149-858-1

図面番号	部品コード	部品名
	2-898-342-01	取扱説明書



CD-ROMマニュアル
2-898-339-03

取扱説明書 (PDF)

印刷用の取扱説明書.pdfは全ての言語が付属品のCD−ROMに含まれています。

注: 印刷物は付属されておりません。
必要な場合は下記部品番号にて注文となります。

2-898-341-01 (日本語)
2-898-341-11 (英語)
2-898-341-21 (ﾌﾗﾝｽ語)
2-898-341-31 (ｽﾍﾟｲﾝ語)
2-898-341-41 (ｲﾀﾘｱ語)
2-898-341-51 (ﾄﾞｲﾂ語)
2-898-341-61 (中国語(簡体字))

6. ADJUSTMENTS

6-1. Adjustment Items Required at Replacement of Main Parts and Boards

When replacing the main parts, adjust the items marked with ● on the table below.
Note 1: The auto-adjustment program does not support these items.

	Parts replaced																
	Boards			Cables			HDDs	Mechanical Parts								Connectors	
Adjustment/Confirmation Item	HD Complete Service	LC-093 Board	SW-492 Board	Between HD and LC Boards	Between HD and SW Boards	FP-431 Flexible Wiring Board	HDD (MK6008GAH-60GB)	HDD Case Assembly	Button Case Assembly	LCD Case Assembly	Top Case Assembly	Bottom Case Assembly	Frame (LCD) Assembly	DM Damper	Tripod Screw	Top Plate	Battery Terminal	DC-IN Connector
HDD Check							●											
HDD Format							●											
Confirmation of HDV AVC Mode Recording	●					●	●	●						●				
Confirmation of HDV AVC Mode Playback	●					●	●	●						●				
Confirmation of HDV SBP Mode Playback	●					●	●	●						●				
Confirmation of Key Input Switch	●	●	●	●	●	●	●	●	●	●	●		●	●		●		
Confirmation of LCD Display	●	●	●	●	●	●	●	●	●	●	●		●	●		●		
Confirmation of Operation at Battery Loading	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Confirmation of G sensor	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
HDD formatting (File Erasure)						●	●	●										
History Data Clear	●						●											
Confirmation of History Data Clear	●						●											
Ex-factory Setting	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

6-2. List of Service Tools

These adjustments and confirmations are performed using a PC with IEEE1394 terminal.
The driver and program exclusive for adjustments and confirmations shall be required to install on the PC.

- **Files used**

Folder Name	File Name	Remarks
Uploader	1394API.dll	For installation of exclusive driver
	1394DIAG.sys	
	1394vdev.inf	
	1394vdev.sys	
	port95nt.exe	
	CMD1394.exe	
	tnf.exe	
HDD_check	HDD_check.exe	For HDD check
FBH_BATCH	Gsen_e.bat	For G sensor check
	LCD2_e.bat	For LCD check
	HISTORY_E.bat	History clear
	POWER_E.bat	Accumulated Running Hour (POW ON) clear
	REC_E.bat	Accumulated Running Hour (REC) clear
	PB_E.bat	Accumulated Running Hour (PB) clear
	FILE_E.bat	Number of recordings clear
	DROP_E.bat	Number of times of drop detection clear
	ERROR_E.bat	Error code history clear

- **Connection Diagram**

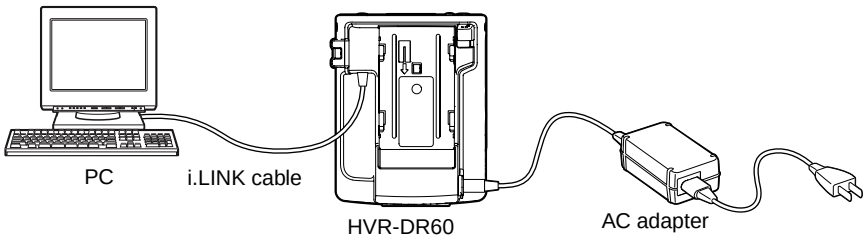


Fig. 6-2-1

Note 1: OS: Windows 2000 Professional (Service Pack4 or later)/
Windows XP HomeEdition (Service Pack2 or later)
Windows XP Professional (Service Pack2 or later)
Standard installation is required.
Operation is not assured if rhe above OS has been upgraded.
CPU: MMX Pentium 200 MHz or faster
IEEE1394 terminal (4P DV connector)

Note 2: Retrieve the batch file etc. used from the item of “ESI Jig & Software” of “ESI homepage” by the following conditions specifying it.
Model Name: HVR-DR60
Category: MPU/ROM/Software

6-3. Installation of Driver

Install the driver exclusive for adjustment/confirmation of HVR-DR60.
Install the driver in the following procedures. Once this work is performed, further installation is not required later on.

Note: If the PC restarts after the driver installation completes, starts from the procedure No. 15.

1. Double-click “Port95nt.exe” in the Uploader folder.
2. According to the installation wizard, begin the installation.
3. After the installation completes, restart the PC.
4. After restarted, open “Control Panel” → “Add Hardware”, and click “Next”.

Add Hardware Wizard
Welcome to the Add Hardware Wizard
This wizard helps you:
• Install software to support the hardware you add to your computer.
• Troubleshoot problems you may be having with your hardware.
If your hardware came with an installation CD, it is recommended that you click Cancel to close this wizard and use the manufacturer's CD to install this hardware.
To continue, click Next.
< Back
Next >
Cancel

Fig. 6-3-1

5. Select “Yes, I have already connected the hardware” and click “Next”.

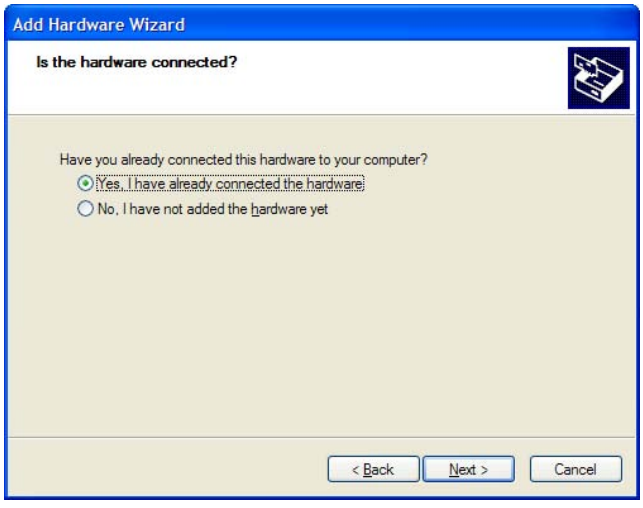

Add Hardware Wizard
Is the hardware connected?
Have you already connected this hardware to your computer?
Yes, I have already connected the hardware
No, I have not added the hardware yet
< Back
Next >
Cancel

Fig. 6-3-2

6. Select “Add a new hardware device” and click “Next”.

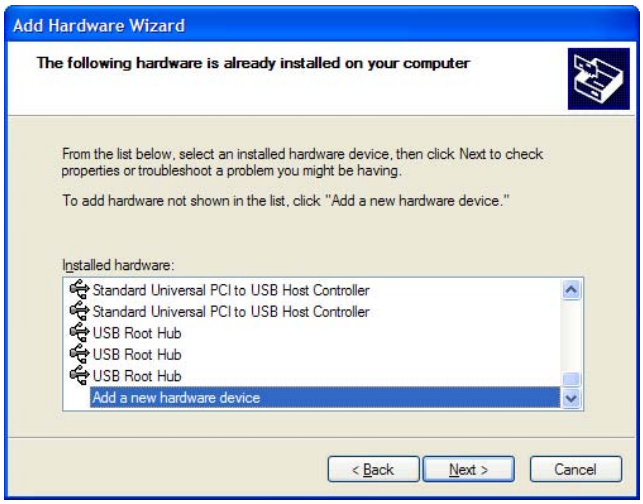

Add Hardware Wizard
The following hardware is already installed on your computer
From the list below, select an installed hardware device, then click Next to check properties or troubleshoot a problem you might be having.
To add hardware not shown in the list, click "Add a new hardware device."
Installed hardware:
Standard Universal PCI to USB Host Controller
Standard Universal PCI to USB Host Controller
USB Root Hub
USB Root Hub
USB Root Hub
Add a new hardware device
< Back
Next >
Cancel

Fig. 6-3-3

7. Select “Install the hardware that I manually selected from a list” and click “Next”.

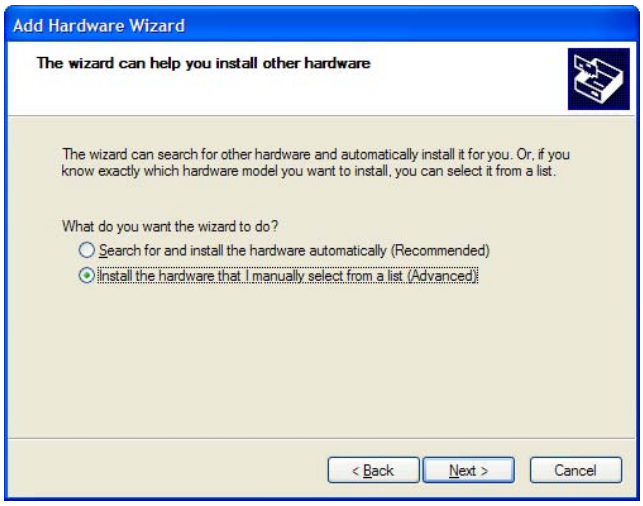

Add Hardware Wizard
The wizard can help you install other hardware
The wizard can search for other hardware and automatically install it for you. Or, if you know exactly which hardware model you want to install, you can select it from a list.
What do you want the wizard to do?
Search for and install the hardware automatically (Recommended)
Install the hardware that I manually select from a list (Advanced)
< Back
Next >
Cancel

Fig. 6-3-4

8. Select “Show All Devices” and click “Next”.

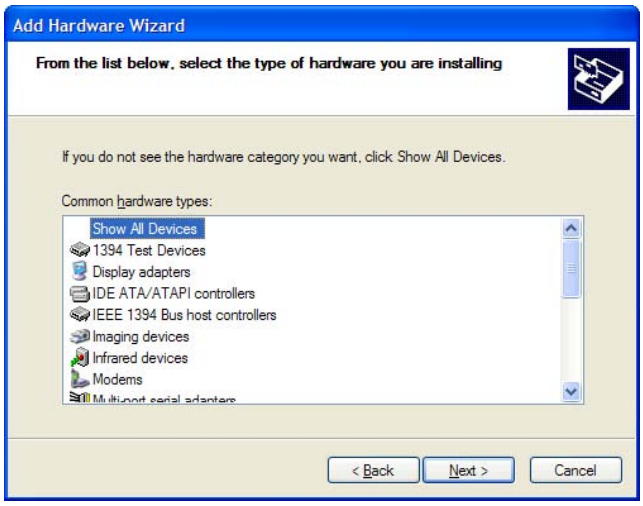

Add Hardware Wizard
From the list below, select the type of hardware you are installing
If you do not see the hardware category you want, click Show All Devices.
Common hardware types:
Show All Devices
1394 Test Devices
Display adapters
IDE ATA/ATAPI controllers
IEEE 1394 Bus host controllers
Imaging devices
Infrared devices
Modems
< Back
Next >
Cancel

Fig. 6-3-5

9. Click “Have Disk”.

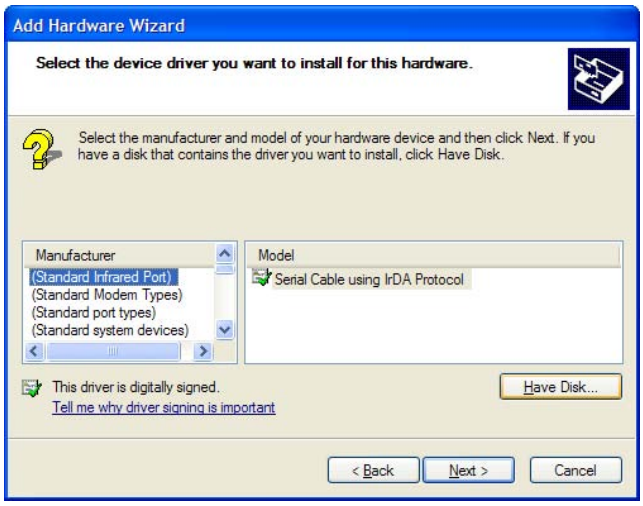

Add Hardware Wizard
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Manufacturer
(Standard Infrared Port)
(Standard Modem Types)
(Standard port types)
(Standard system devices)
Model
Serial Cable using IrDA Protocol
This driver is digitally signed.
Tell me why driver signing is important
Have Disk...
< Back
Next >
Cancel

Fig. 6-3-6

10. Click “Browse”.

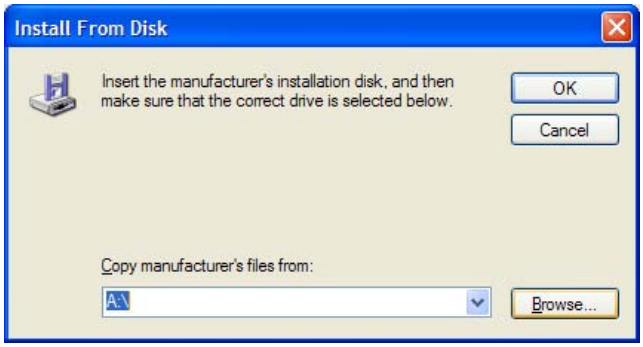


Fig. 6-3-7

11. Select “1394vdev.inf” copied to the PC and click “Open”.

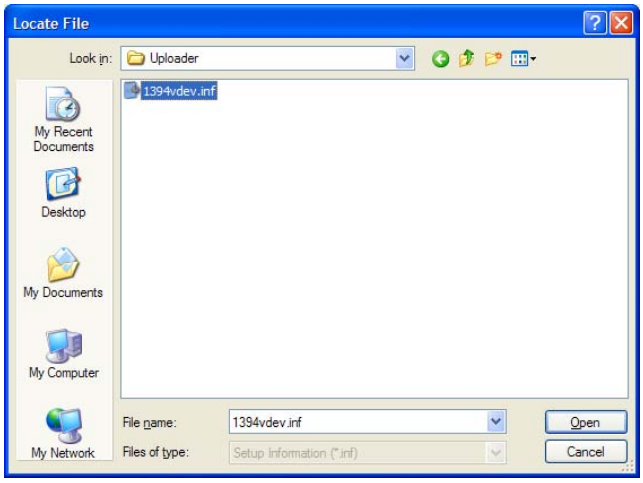


Fig. 6-3-8

12. Click “OK”.

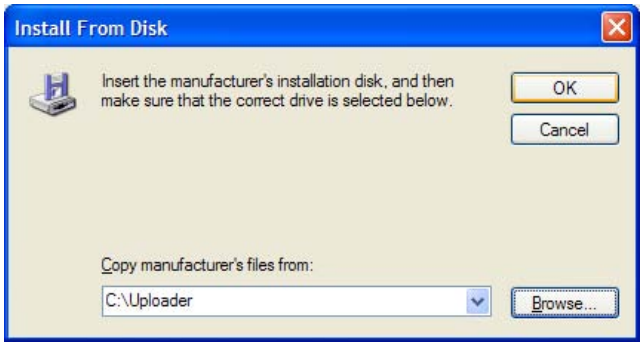


Fig. 6-3-9

13. Select “1394 Virtual Device” and click “Next”.

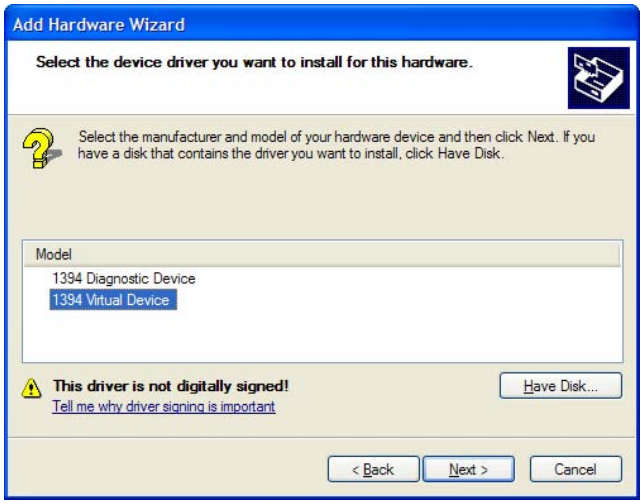

Add Hardware Wizard
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Model
1394 Diagnostic Device
1394 Virtual Device
This driver is not digitally signed!
Tell me why driver signing is important
Have Disk...
< Back
Next >
Cancel

Fig. 6-3-10

14. Click “Next”. Then, the installation starts.

Add Hardware Wizard
The wizard is ready to install your hardware
Hardware to install:
1394 Virtual Device
To start installing your new hardware, click Next.
< Back
Next >
Cancel

Fig. 6-3-11

Note: When driver is installed, personaol computer might be reset.
In this case, please proceed work from procedure 15 after starting the personal computer.

15. Confirm the result of driver installation.
Open “System Properties” → “Device Manager”.

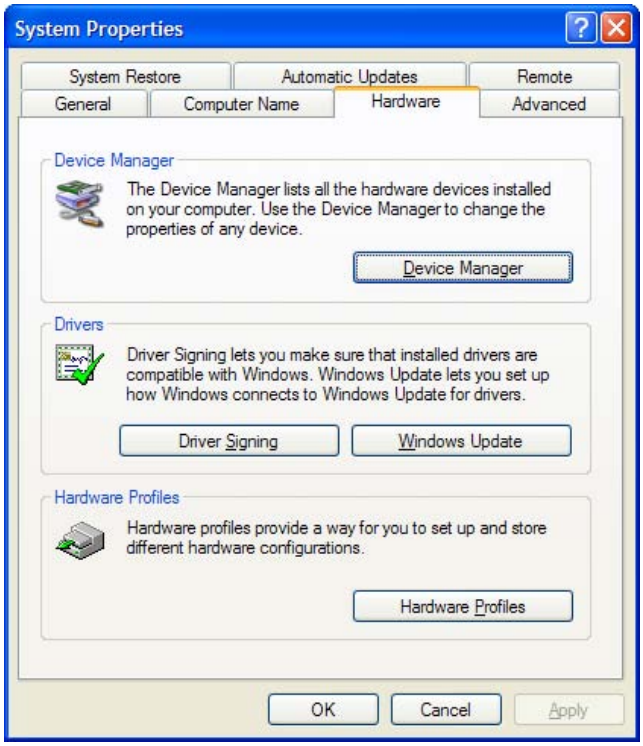

System Properties
System Restore
Automatic Updates
Remote
General
Computer Name
Hardware
Advanced
Device Manager
The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.
Device Manager
Drivers
Driver Signing lets you make sure that installed drivers are compatible with Windows. Windows Update lets you set up how Windows connects to Windows Update for drivers.
Driver Signing
Windows Update
Hardware Profiles
Hardware profiles provide a way for you to set up and store different hardware configurations.
Hardware Profiles
OK
Cancel
Apply

Fig. 6-3-12

16. If “1394 Virtual device” is displayed below “1394 Test Devices”, the installation is normally finished.

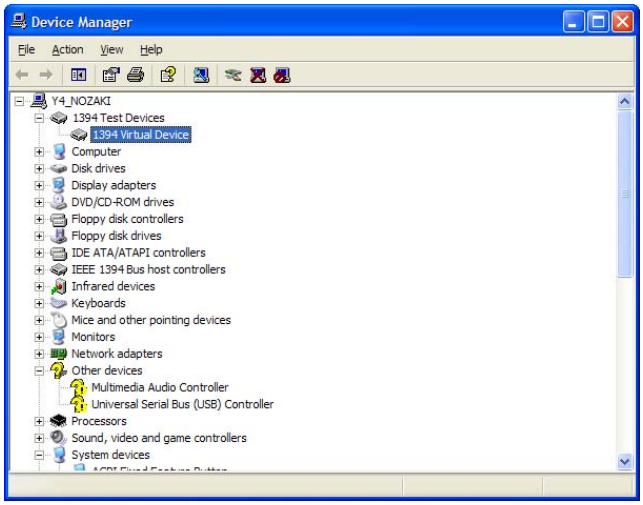


Fig. 6-3-13

17. If “Unknown device” is displayed below “1394 Test Devices”, update the driver in the procedures below.

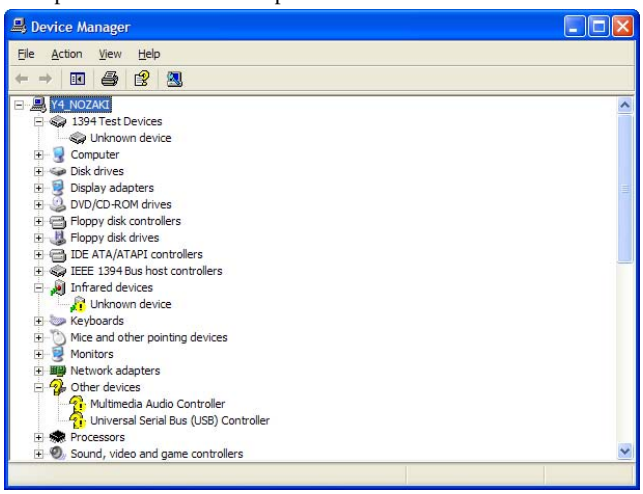


Fig. 6-3-14

18. Right-click “Unknown devices” and select “Update Driver”.

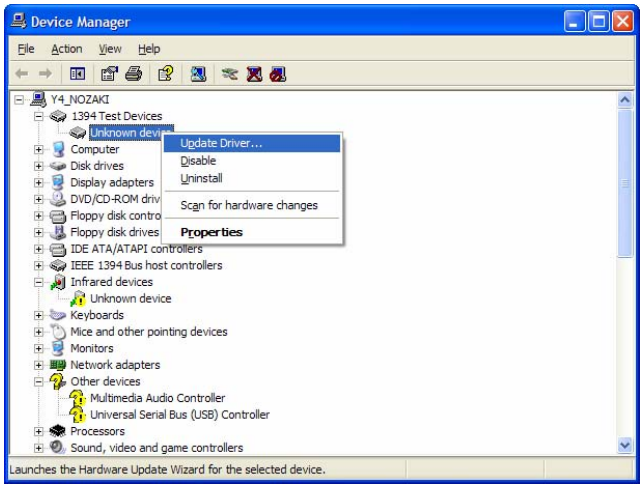


Fig. 6-3-15

19. Select “Install from a list or specific location” and click “Next”.

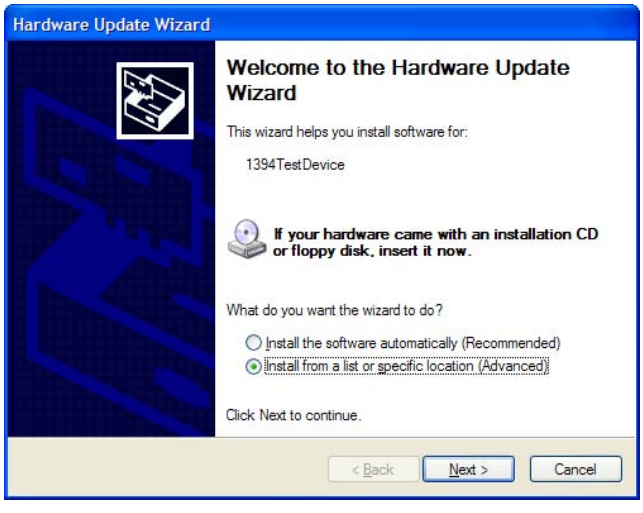

Hardware Update Wizard
Welcome to the Hardware Update Wizard
This wizard helps you install software for:
1394TestDevice
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

Fig. 6-3-16

20. Click “Browse”.

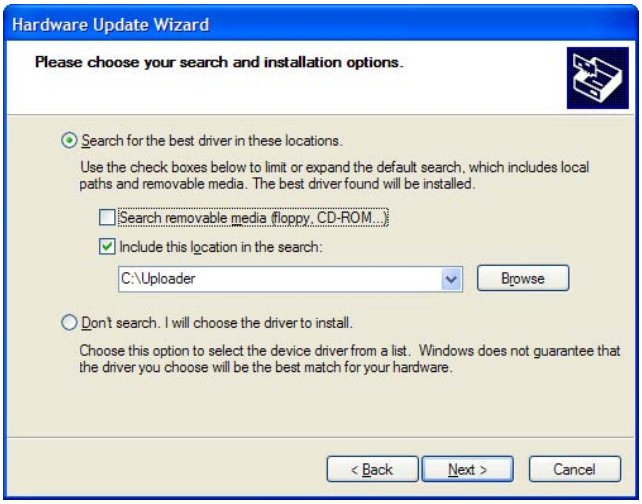

Hardware Update Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\Uploader
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

Fig. 6-3-17

21. Specify the location (Uploader) where the driver is saved and click “OK”.
    The installation starts.

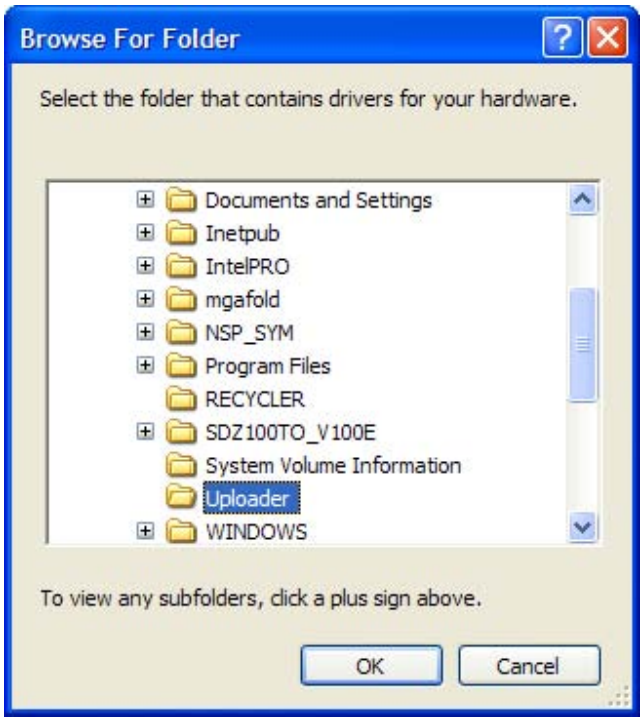


Fig. 6-3-18

22. After the installation completes, click “Finish”.
23. Open “Device Manager”. If “1384 Virtual Devices” is displayed below “1394 Test Devices”, the installation is normally finished.

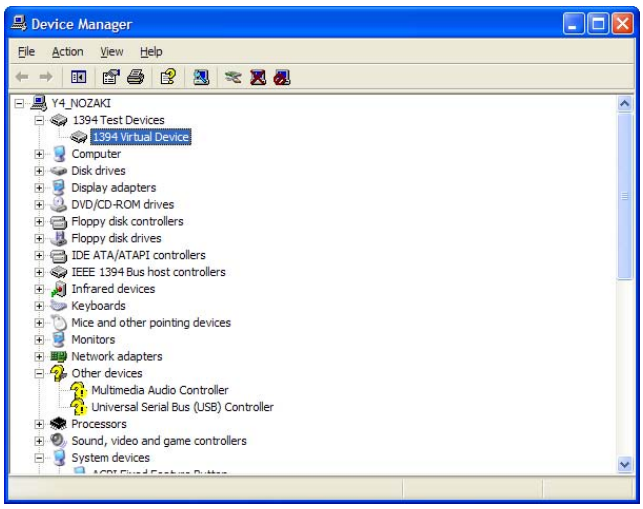


Fig. 6-3-19

6-4. HDD Check

Perform the factory check of HDD.
Confirmation condition: Only when a HDD is replaced.
Jig specified:
- PC (with IEEE1394 terminal and driver exclusive for HVR-DR60 adjustment/confirmation installed)
- iLINK cable
- AC adapter

Adjustment Inspection Procedure

1. Format the HDD.

(1) Set the Power (mode selector) SW to VIDEO.
(2) Press the MENU button.
The MAIN MENU appears on the LCD of HVR unit.
(3) Press the FF button on the HVR unit to set the cursor to DELETE.
(4) Press the PLAY button to perform DELETE.
(5) Press the FF button to set the cursor to FORMAT.
(6) Press the PLAY button to perform FORMAT.
(7) Press the FF button to set the cursor to OK.
(8) Press the PLAY button.
Formatting starts.
(9) When “Complete” appears on the LCD, press the STOP button.
If “270min” appears on the LCD, formatting completes.

2. Check the HDD, using the HVR-DR60 check software.

Check Software Name: HDD_check.exe

Connection

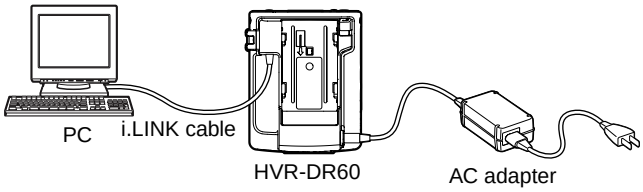


Fig. 6-4-1

Procedures

(1) Slide the POWER switch of HVR-DR60 unit to “COMPUTER”.

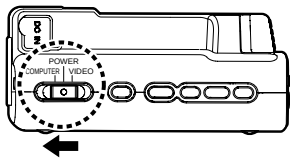


Fig. 6-4-2

(2) Confirm that a new drive name is displayed on the PC.
The name appeared differs depending on the PC.
(3) Double-click “HDD_check.exe” copied to the PC.
(4) The “Storage device test” window appears.
Select the drive name added to the PC.

Note: Be sure to select the new drive added to the PC since the existing ones are also appeared in the pul-down list.

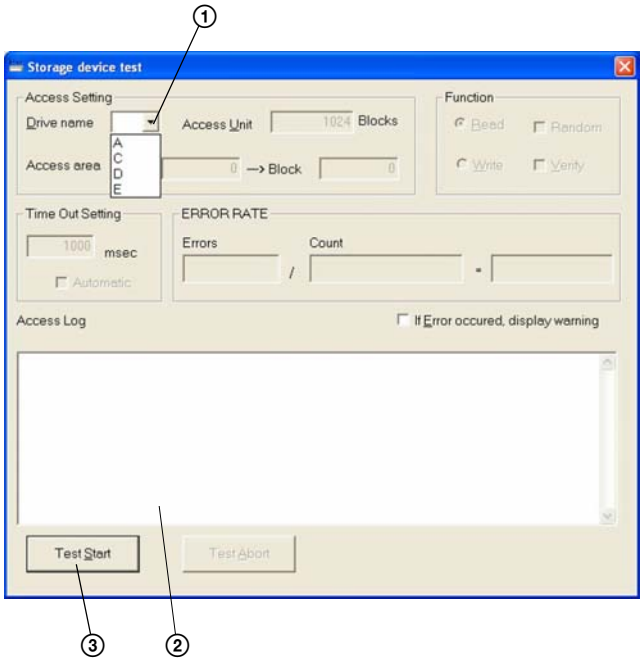


Fig. 6-4-3

① Select Drive name of HVR-DR60 connected to PC.
② Display Access Log at the time of program execution.
③ The start button of test program.

(5) Click “Test Start”.

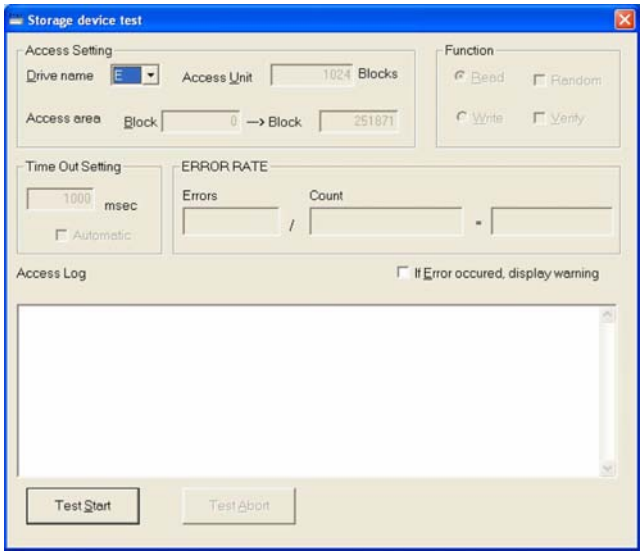


Fig. 6-4-4

Note: When selected drive is Windows installed, the following display appears.

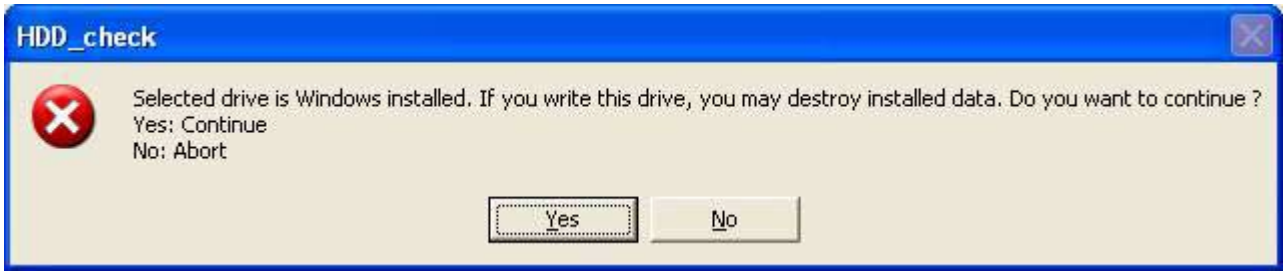

HDD_check
Selected drive is Windows installed. If you write this drive, you may destroy installed data. Do you want to continue ?
Yes: Continue
No: Abort
Yes
No

Fig.6-4-5

Note: When selected drive is not Windows installed, the following display appears.

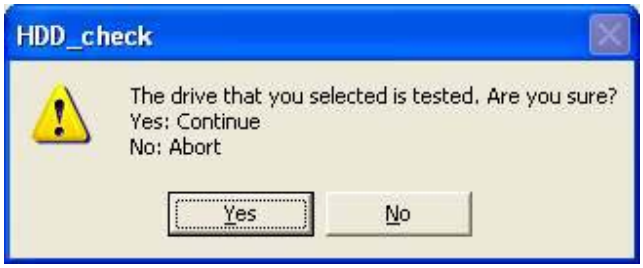


Fig.6-4-6

(6) The “Input Drive Data” dialogue appears.
Click “OK”.

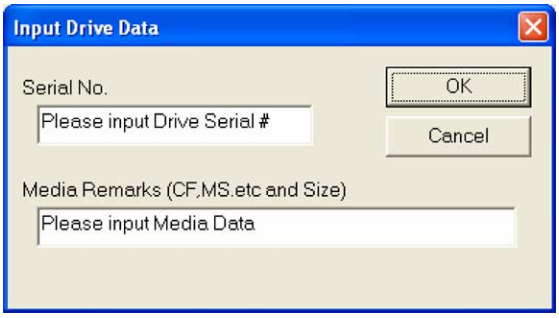


Fig. 6-4-7

(7) The HDD check starts.
The “Worker thread start” message appears.
It takes approx. 10 minutes to check the HDD.

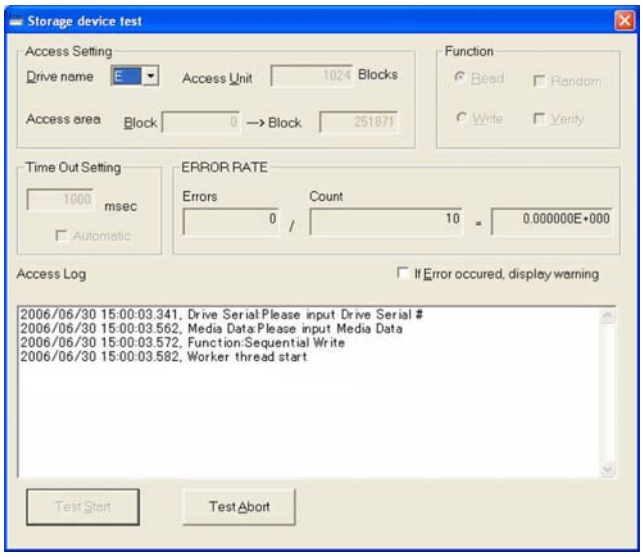


Fig. 6-4-8

(8) After the HDD check finishes normally, the “Worker thread is done” message appears in the access log list.
Click “×” to finish.
The dialogue below appears to confirm “finish”. Click “Yes”.

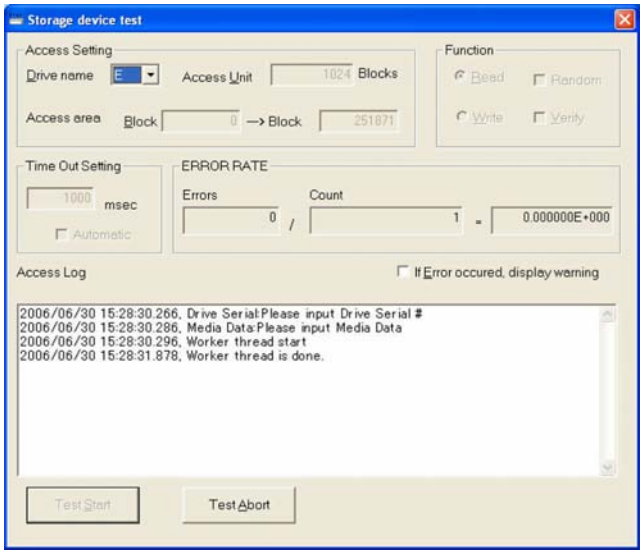


Fig. 6-4-9

(9) • Confirm that the time lag from “Write-Read Check” to “Read Cheak” is less than “3 minutes and 30second”.
• Confirm that the time lag from “Read Cheak” to “Worker thread is done.”is less than “5 minutes and 30second”.

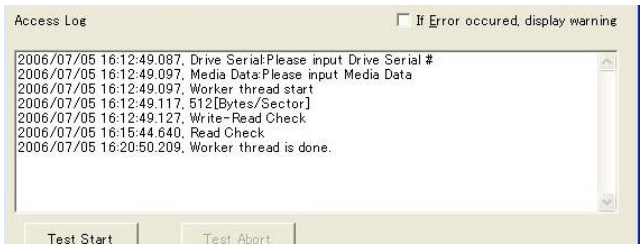

Access Log
If Error occured, display warning
2006/07/05 16:12:49.087, Drive Serial:Please input Drive Serial #
2006/07/05 16:12:49.097, Media Data:Please input Media Data
2006/07/05 16:12:49.097, Worker thread start
2006/07/05 16:12:49.117, 512[Bytes/Sector]
2006/07/05 16:12:49.127, Write-Read Check
2006/07/05 16:15:44.640, Read Check
2006/07/05 16:20:50.209, Worker thread is done.
Test Start
Test Abort

Fig. 6-4-10

(10) Terminate by clicking “×”.
The dialogue below appears to confirm the termination. Click “Yes”.
Then, the check software is quit.

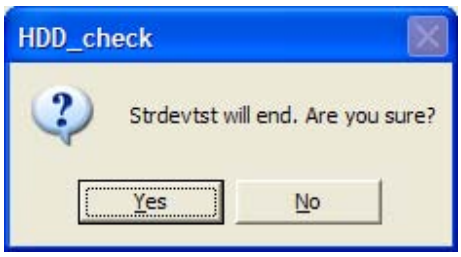


Fig. 6-4-11

In case of abnormality
In case of abnormal check result is obtained, the message below appears.
[Write NG, Start Block = xxxx, End Block = xxxx, Time = ‘xx’ msec]

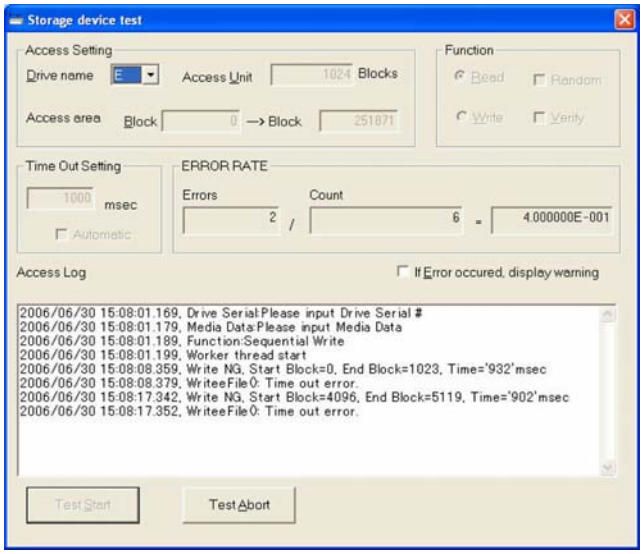


Fig. 6-4-12

3. **Confirm that no error exists.**
4. **Format the HDD.**
Perform steps (1) to (10).

6-5. HDD AVC Mode Recording Check

Confirm that the HDV moving picture is recorded in AVC mode.
Adjustment conditions: HVR-DR60 AVC mode
Camera HDV mode
Jig specified:
- HDV camcorder
- i.LINK cable
- AC adapter

Connection

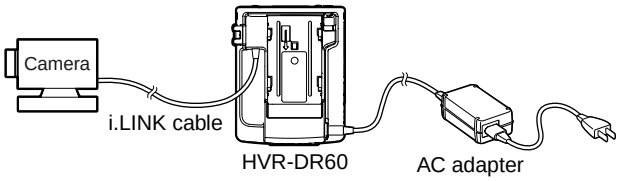


Fig. 6-5-1

Procedures
1. Set the POWER switch of camcorder to CAMERA.
2. Set the VIDEO OUTPUT of camcorder to HDV mode.
   The "STBY" appears on the LCD of HVR-DR60.
3. Set the REC button of HVR-DR60 to ON and record a moving object.
   Recording Time: Approx. 5 seconds
   - Confirm that the recording LED of HVR-DR60 lights.
   - Confirm that "REC" appears on the LCD of HVR-DR60 and the counter is running.
4. Press the STOP button.
   Jig specified
   - Confirm that the LED of HVR-DR60 goes off.
   - Confirm that "STBY" appears on the LCD of HVR-DR60.

Inspection specification
Play back the recorded video and confirm that the video is recorded.

6-6. Confirmation of HDV AVC Mode Playback

Confirm that the HDV moving picture is played back in AVC mode.
Adjustment conditions: HVR-DR60 AVC mode
Camera HDV mode
Jig specified:
- HDV camcorder
- i.LINK cable
- AC adapter

Connection

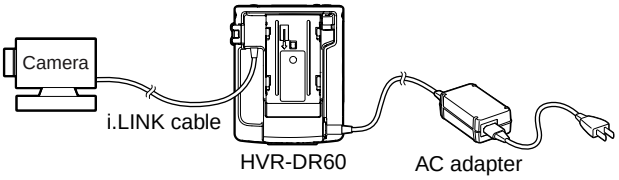


Fig. 6-6-1

Procedure
1. Set the POWER switch of camcorder to VIDEO.
2. Press the PLAY button of HVR-DR60.
   - Confirm that "PLAY" appears on the LCD of HVR-DR60 and the counter is running.
   - Confirm that the video is played back on the LCD of camcorder.

Inspection Specification
The recorded video is played back without any problem.

6-7. Confirmation of DV SBP Mode Playback

Confirm that the DV moving picture is played back in SBP mode.
Adjustment conditions: SBP mode
Jig specified:
- PC (with IEEE1394 terminal and driver exclusive for HVR-DR60 adjustment/confirmation installed)
- i.LINK cable
- AC adapter

Procedures
1. Record a DV picture.
(1) Set the camcorder to CAMERA and DV mode.
(2) Set the POWER switch of camcorder to VIDEO.
"STBY" iappears on the LCD of HVR unit.
(3) Set the REC button of HVR-D60 unit to ON and record the moving object.
   - Confirm that the recording LED lights.
   - Confirm that "REC" appears on the LCD and the counter is running.
(4) Press the STOP button of HVR-DR60.
   - Confirm that the LED goes off.
   - Confirm that "STBY" is displayed on the LCD soon.

2. Confirm that the moving picture is played back on the PC.
(1) Connect the i.LINK cable to the PC.
(2) Set the POWER switch of HVR-DR60 unit to COMPUTER.
   - The LCD back light turns on.
(3) Confirm that the new drive appears on the PC.
(4) Play back an avi file in DVFÄ100DVF on the HDD of HVR-DR60 unit with Media Player.

Inspection Specification
The video can be played back without interruption.

6-8. Key Check

Confirm the functions of each switch of HVR-DR60.

Jig specified:
- i.LINK cable
- AC adapter

Procedures

1. Press each operating switch and confirm its operation.

Confirmation Methods of Switches

Switches	ConfirmationMethods
POWER (VIDEP/OFF/ COMPUTER)	OFF: The power is turned off. VIDEO: The played and recorded pictures are displayed. COMPUTER: Fig. 6-8-1 is displayed.
REC	Recording starts.
STOP	Recording or playing stops.
PLAY	The video can be played back. (At picture saving)
	Or the action of decision can be done in the menu.
FF	The played back video can be fast-forwarded.
	Or the cursor on the menu can be moved.
REW	The played back video can be fast-forwarded.
	Or the cursor on the menu can be moved re versely against in FF.
CAM LINK	The icon “c” in Fig. 6-8-2 is displayed.
REPEAT	The icon “i” in Fig. 6-8-2 is displayed.
MENU	The menu is displayed.

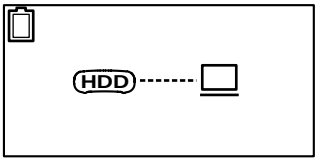


Fig. 6-8-1

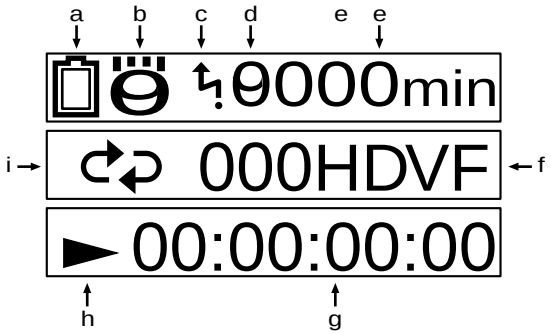


Fig. 6-8-2

6-9. LCD Indication Check

Confirm that there are no spots that do not light.
(Immediately after writing the firmware, check the LCD display.)

Jig specified:
- PC (with IEEE1394 terminal and driver exclusive for HVR-DR60 adjustment/confirmation installed)
- iLINK cable
- AC adapter

Procedures

1. Check the LCD display, using the HVR-DR60 check software.
   Check Software Name: LCD2_e.bat

(1) Double-click “LCD2_e.bat” copied to the PC.
(2) The command prompt starts up.
   The test command is automatically executed.
   The message “Press any key to continue” appears on the command line and the prompt waits for command entry.
   In this state, the entire LCD becomes black. Confirm that there are no spots that are not black.

Fig. 6-9-1

(3) Press the ENTER key of PC.
   The message “Press any key to continue” appears on the command line.
   In this state, confirm that the zigzag is displayed on the LCD. Confirm that the neighboring picture elements are not identical color.

(4) Press the ENTER key of PC.
   The message “Press any key to continue “ appears on the command line.
   In this state, confirm that the zigzag is displayed on the LCD. Confirm that the neighboring picture elements are not identical color. (The pattern is reversed from step 3.)

(5) Press the ENTER key of PC.
   The command prompt automatically closes and the check program is terminated.

6-10. Battery Check

Confirm that the unit is powered when the battery is used.
Jig specified: Battery

Procedures

1. Load the battery on the HVR-DR60.
2. Set the POWER (mode selector) switch to VIDEO and confirm that the unit is powered.

Inspection Specification

The unit is powered by the battery.

6-11. G-sensor Check

Confirm that the G sensor of HVR-DR60 works.

Jig specified:
- PC (with IEEE1394 terminal and driver exclusive for HVR-DR60 adjustment/confirmation installed)
- iLINK cable
- AC adapter

Procedures

1. Read the output values in the G sensor, using the HVR-DR60 check software.
   And confirm that they meet the specification.
   Check Software Name: Gsen_e.bat

Procedure

(1) Connect the PC and HVR-DR60 with the i.LINK cable.
(2) Set the POWER (mode selector) switch to VIDEO.
(3) Double-click “Gsen_e.bat” copied to the PC.
   The command prompt starts up.
   The test command is automatically executed. and the message “Press any key to continue” appears on the command line and the prompt waits for command entry.
   In this state, check the values displayed on the LCD menu.
   x: ***
   y: ***
   z: ***

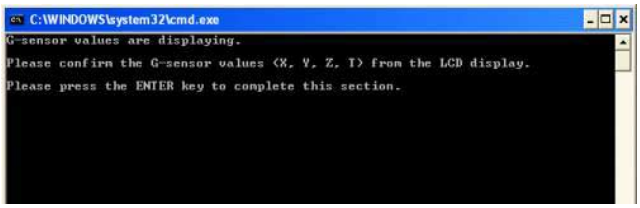

C:\WINDOWS\system32\cmd.exe
G-sensor values are displaying.
Please confirm the G-sensor values (X, Y, Z, T) from the LCD display.
Please press the ENTER key to complete this section.

Fig. 6-11-1

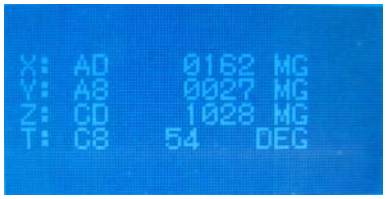


Fig. 6-11-2

(4) Press the ENTER key.
   The command prompt automatically closes and the check program is terminated.

Inspection Specifications

X: 200 - 001 or 000 - 200
Y: 200 - 001 or 000 - 200
Z: 900 - 1300

6-12. HDD Format (File Erasure)

To erase files on the HDD of HVR-DR60, format the HDD.
(This is executed when the HDD is replaced.)

Procedures

1. Format the HDD built-in the HVR-DR60.
(1) Set the POWER switch to VIDEO.
(2) Press the MENU button.
   The MAIN MENU appears on the LCD.
(3) Press the FF button to set the cursor to DELETE.
(4) Press the PLAY button to delete.
(5) Press the FF button to set the cursor to FORMAT.
(6) Press the PLAY button to format.
(7) Press the FF button to set the cursor to OK.
(8) Press the PLAY button.
   • Formatting starts.
(9) When “COMPLETE” appears on the LCD, press the STOP button.
   • Confirm that “270min” appears on the LCD.
   • Formatting completes.

6-13. History Clear

Clear the error data. Clear the accumulated running hour, a number of recordings and a number of times of drop detection.

Jig specified:
- PC (with IEEE1394 terminal and driver exclusive for HVR-DR60 adjustment/confirmation installed)
- iLINK cable
- AC adapter

Procedures

1. Select the content to be erased depending on the part replaced in the HVR-DR60.

(1) Connect the PC and HVR-DR60 with the i.LINK cable.
(2) Set the POWER (mode selector) switch to VIDEO.
(3) Double-click “HISTORY_E.bat” copied to the PC.
The command prompt starts up.
The test command is automatically executed.
The message “Press any key to continue” appears on the command line and the prompt waits for command entry.

Fig. 6-13-1

HISTORY.TXT - Notepad
File Edit Format View Help
06:36 PM
********** The meaning for history information **********
"Fact.ErrHist0 => history of error code 0"
"Fact.ErrHist1 => history of error code 1"
"Fact.ErrHist8 => history of error code 8"
"Fact.ErrHist9 => history of error code 9"
"Fact.Pon => The accumulate time for POWER ON (seconds)"
"Fact.Rec => The accumulate of the Recording time (seconds)"
"Fact.Play => The accumulate of Play back time (seconds)"
"Fact.Files => The accumulate of file creating"
"Fact.Gdet => The accumulate count of dropping"
Other than above information will not be provided.
********** The history information is as below **********
Err.TempErr1 = 72
Err.TempErr2 = 70
HDD.LoTempTh = 0
HDD.BattTh = 7000
AVLink.FutureTimeStamp = 0x3300
Fact.ErrPtr = 0
Fact.ErrHist0 = 0000000000
Fact.ErrHist1 = 0000000000
Fact.ErrHist2 = 0000000000
Fact.ErrHist3 = 0000000000
Fact.ErrHist4 = 0000000000
Fact.ErrHist5 = 0000000000
Fact.ErrHist6 = 0000000000
Fact.ErrHist7 = 0000000000
Fact.ErrHist8 = 0000000000
Fact.ErrHist9 = 0000000000
Fact.Pon = 0x00002454
Fact.Rec = 0x00000000
Fact.Play = 0x00000000
Fact.Files = 0x00000000
Fact.Gdet = 0x00000000
loader.MemoryTest = 0x00000000
SubMagic = 0x00000001
MENU.TcMode = 0x00000000
MENU.CacheOn = 0x00000000
MENU.Avi = 0x00000001

Fig. 6-13-2

(4) Press the ENTER key.
The command prompt automatically closes and the program is terminated.
(5) Clear the accumulated running hour (POW ON).
Execute POWER_E.bat.

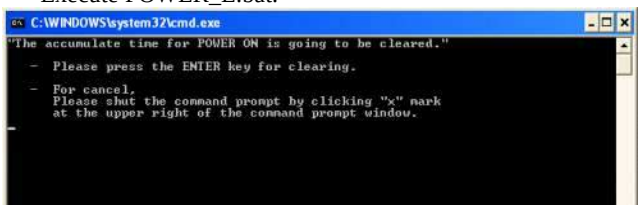

C:\WINDOWS\system32\cmd.exe
"The accumulate time for POWER ON is going to be cleared."
- Please press the ENTER key for clearing.
- For cancel,
Please shut the command prompt by clicking "x" mark
at the upper right of the command prompt window.

Fig. 6-13-3

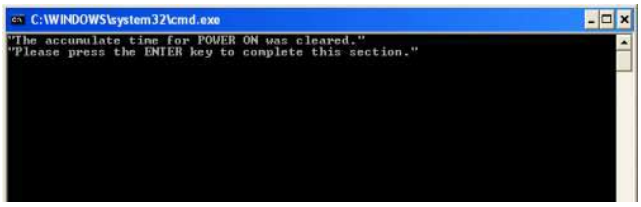

C:\WINDOWS\system32\cmd.exe
"The accumulate time for POWER ON was cleared."
"Please press the ENTER key to complete this section."

Fig. 6-13-4

(6) Clear the accumulated running hour (REC).
Execute REC_E.bat.

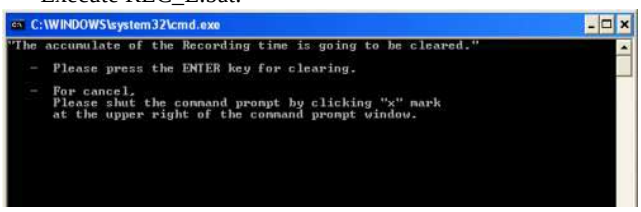

C:\WINDOWS\system32\cmd.exe
"The accumulate of the Recording time is going to be cleared."
- Please press the ENTER key for clearing.
- For cancel,
Please shut the command prompt by clicking "x" mark
at the upper right of the command prompt window.

Fig. 6-13-5

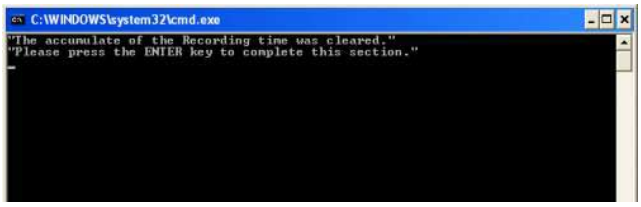

C:\WINDOWS\system32\cmd.exe
"The accumulate of the Recording time was cleared."
"Please press the ENTER key to complete this section."

Fig. 6-13-6

(7) Clear the accumulated running hour (PB).
Execute PB_E.bat.

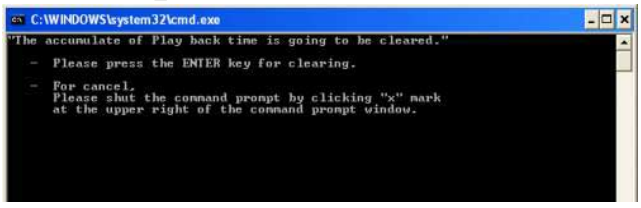

C:\WINDOWS\system32\cmd.exe
"The accumulate of Play back time is going to be cleared."
- Please press the ENTER key for clearing.
- For cancel,
Please shut the command prompt by clicking "x" mark
at the upper right of the command prompt window.

Fig. 6-13-7

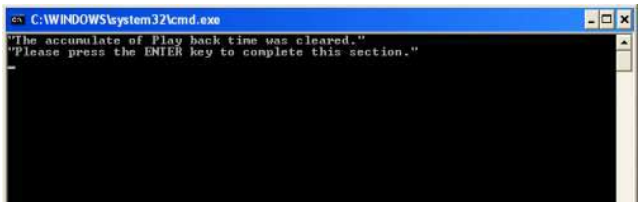

C:\WINDOWS\system32\cmd.exe
"The accumulate of Play back time was cleared."
"Please press the ENTER key to complete this section."

Fig. 6-13-8

(8) Clear a number of recordings.
Execute FILE_E.bat.

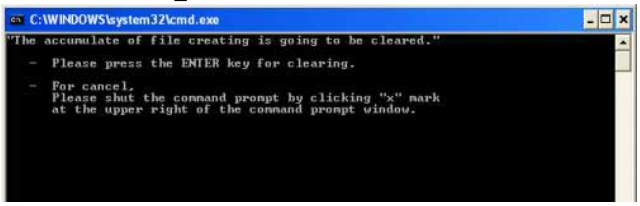

C:\WINDOWS\system32\cmd.exe
"The accumulate of file creating is going to be cleared."
- Please press the ENTER key for clearing.
- For cancel,
Please shut the command prompt by clicking "x" mark
at the upper right of the command prompt window.

Fig. 6-13-9

C:\WINDOWS\system32\cmd.exe
"The accumulate of file creating was cleared."
"Please press the ENTER key to complete this section."

Fig. 6-13-10

(9) Clear a number of times of drop detection.
Execute DROP_E.bat.

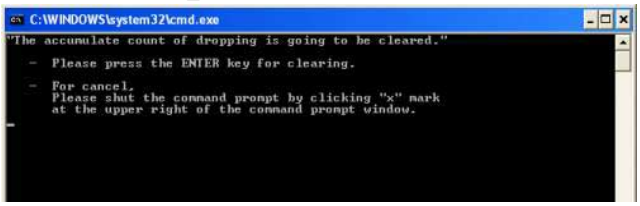

C:\WINDOWS\system32\cmd.exe
"The accumulate count of dropping is going to be cleared."
- Please press the ENTER key for clearing.
- For cancel,
Please shut the command prompt by clicking "x" mark
at the upper right of the command prompt window.

Fig. 6-13-11

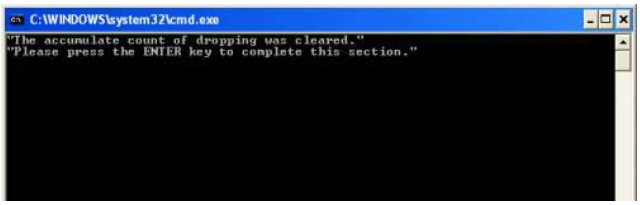

C:\WINDOWS\system32\cmd.exe
"The accumulate count of dropping was cleared."
"Please press the ENTER key to complete this section."

Fig. 6-13-12

(10) Clear the error code history.
Execute ERROR_E.bat.

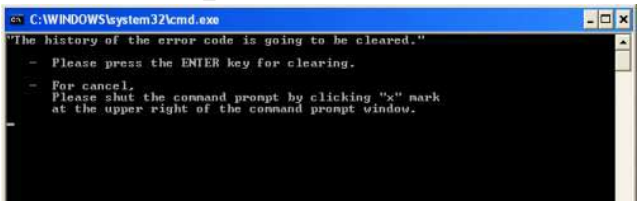
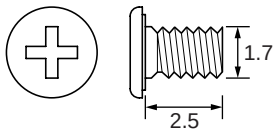

C:\WINDOWS\system32\cmd.exe
"The history of the error code is going to be cleared."
- Please press the ENTER key for clearing.
- For cancel,
Please shut the command prompt by clicking "x" mark
at the upper right of the command prompt window.

Fig. 6-13-13

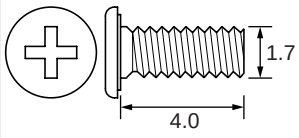
Fig. 6-13-14

HARDWARE LIST (1/4)

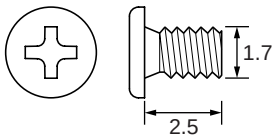
#1: M1.7 X 2.5
(Black)
2-635-562-11



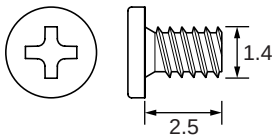
#2: M1.7 X 4.0
(Black)
2-635-562-31



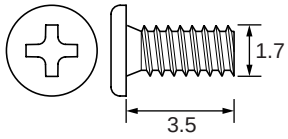
#3: M1.7 X 2.5
(Red)
2-660-401-01



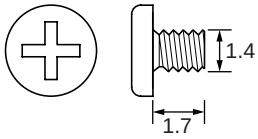
#4: M1.4 X 2.5 (Tapping)
(Dark Silver)
3-348-998-81



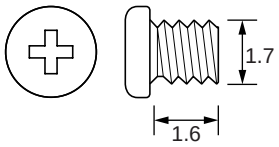
#5: M1.7 X 3.5 (Tapping)
(Black)
3-080-204-01



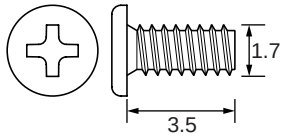
#6: M1.4 X 1.7
(Silver)
2-598-474-01



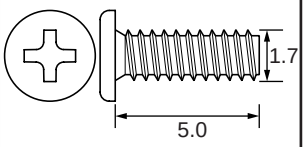
#7: M1.7 X 1.6
(Black)
7-627-552-18



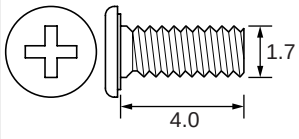
#8: M1.7 X 3.5 (Tapping)
(Silver)
3-078-890-01



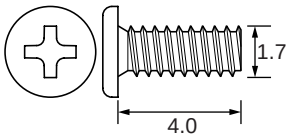
#9: M1.7 X 5.0 (Tapping)
(Silver)
3-078-890-21



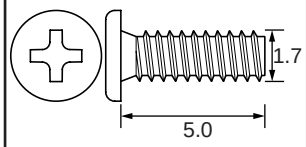
#10: M1.7 X 4.0
(Silver)
2-599-475-31



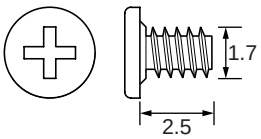
#11: M1.7 X 4.0 (Tapping)
(Silver)
3-078-890-11



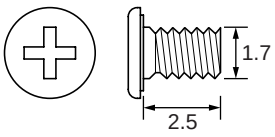
#12: M1.7 X 5.0 (Tapping)
(Black)
3-080-204-21



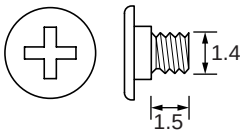
#13: M1.7 X 2.5 (Tapping)
(Silver)
3-085-397-01



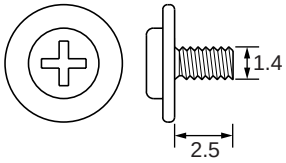
#14: M1.7 X 2.5
(Silver)
2-599-475-11



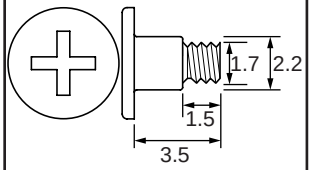
#15: M1.4 X 1.5
(Silver)
3-062-214-01



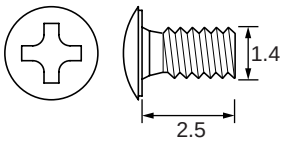
#16: M1.4 X 2.5
(Silver)
2-586-337-01



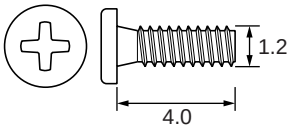
#17: M1.7 X 1.5
(Silver)
2-586-389-01



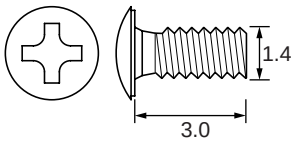
#18: M1.4 X 2.5
(Silver)
2-635-591-21



#19: M1.2 X 4.0 (Tapping)
(Red)
3-086-156-21

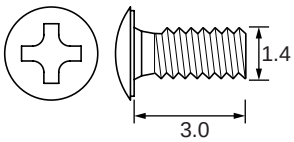


#20: M1.4 X 3.0
(Silver)
2-635-591-31

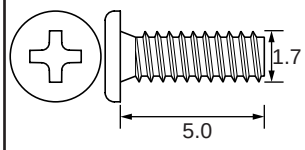


HARDWARE LIST (2/4)

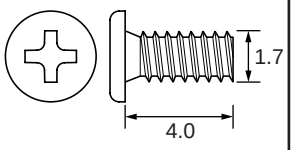
#21: M1.4 X 3.0
(Black)
2-662-396-21



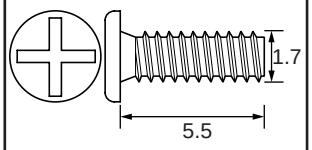
#22: M1.7 X 5.0 (Tapping)
(Silver)
3-083-261-01



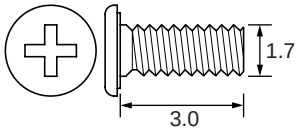
#23: M1.7 X 4.0 (Tapping)
(Black)
3-080-204-11



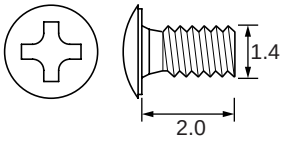
#24: B1.7 X 5.5 (Tapping)
(Black)
4-679-805-11



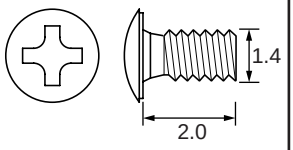
#25: M1.7 X 3.0
(Black)
2-635-562-21



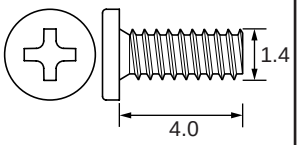
#26: M1.4 X 2.0
(Silver)
2-635-591-11



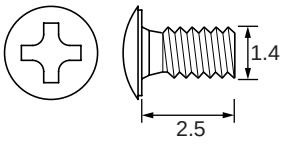
#27: M1.4 X 2.0
(Black)
2-662-396-11



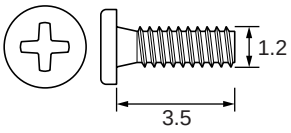
#28: M1.4 X 4.0 (Tapping)
(Dark Silver)
3-348-998-61



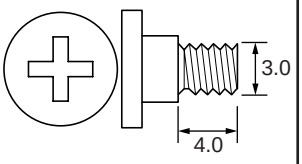
#29: M1.4 X 2.5
(Black)
2-662-396-01



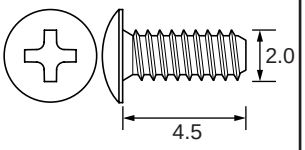
#30: M1.2 X 4.0 (Tapping)
(White)
3-086-156-11



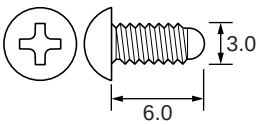
#31: M3.0 X 4.0
(Silver)
2-102-434-01



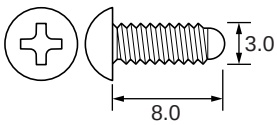
#32: M2.0 X 4.5 (Tapping)
(Silver)
2-102-498-01



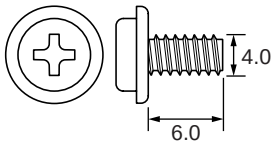
#33: M3.0 X 6.0
(Silver)
3-077-331-21



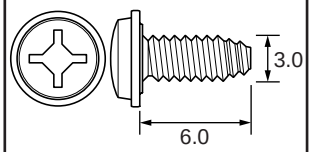
#34: M3.0 X 8.0
(Black)
3-077-331-41



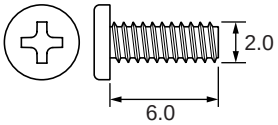
#35: M4.0 X 6.0 (Tapping)
(Silver)
3-975-291-02



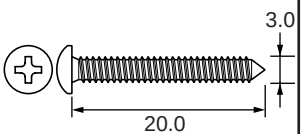
#36: M3.0 X 6.0
(Silver)
4-886-821-11



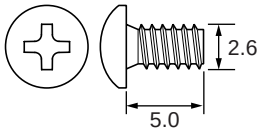
#37: M2.0 X 6.0 (Tapping)
(Black)
3-080-206-31



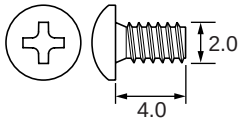
#38: M3.0 X 20.0 (Tapping)
(Silver)
7-685-651-79



#39: M2.6 X 5.0 (Tapping)
(Black)
7-685-791-09

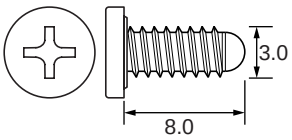


#40: M2.0 X 4.0 (Tapping)
(Silver)
7-685-851-04

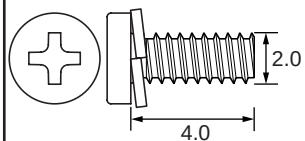


HARDWARE LIST (3/4)

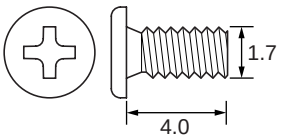
#41: M3.0 X 8.0 (Tapping)
(Silver)
3-065-748-01



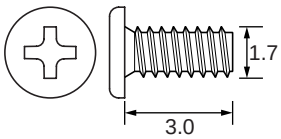
#42: M2.0 X 4.0 (Tapping)
(Silver)
7-628-253-00



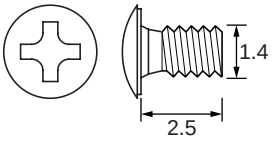
#43: M1.7 X 4.0
(Red)
2-660-401-31



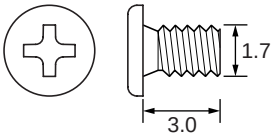
#44: M1.7 X 3.0 (Tapping)
(Silver)
3-078-890-61



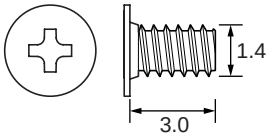
#45: M1.4 X 2.5
(Silver)
2-587-151-01



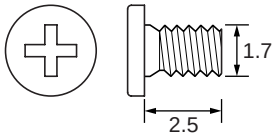
#46: M1.7 X 3.0
(Red)
2-660-401-11



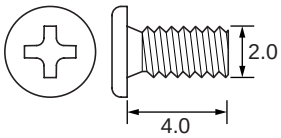
#47: M1.4 X 3.0 (Tapping)
(Silver)
2-665-774-01



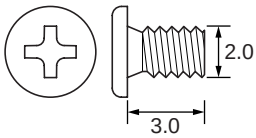
#48: M1.7 X 2.5
(Silver)
3-973-497-91



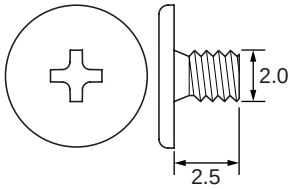
#49: M2.0 X 4.0
(Black)
2-630-005-31



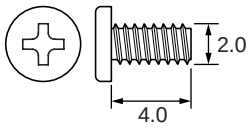
#50: M2.0 X 3.0
(Red)
2-891-494-11



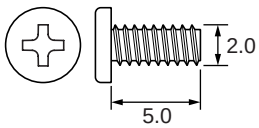
#51: M2.0 X 2.5
(Silver)
3-073-686-01



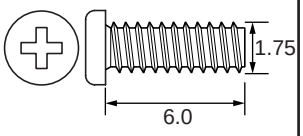
#52: M2.0 X 4.0 (Tapping)
(Black)
3-080-206-11



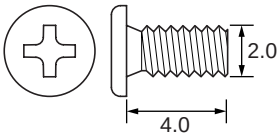
#53: M2.0 X 5.0 (Tapping)
(Black)
3-080-206-21



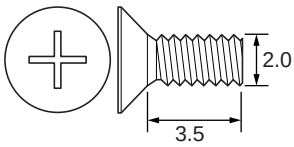
#54: M1.75 X 6.0 (Tapping)
(Black)
3-318-203-11



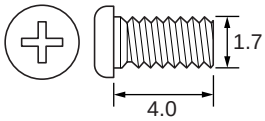
#55: M2.0 X 4.0
(Silver)
2-655-582-11



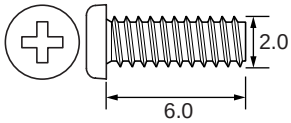
#56: M2.0 X 3.5
(Silver)
3-067-187-11



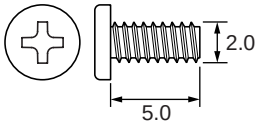
#57: M1.7 X 4.0
(Black)
7-627-852-18



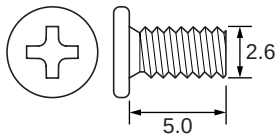
#58: M2.0 X 6.0 (Tapping)
(Silver)
3-719-408-11



#59: M2.0 X 5.0 (Tapping)
(Silver)
3-080-205-21

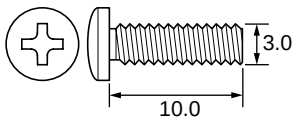


#60: M2.6 X 5.0
(Black)
3-061-062-11

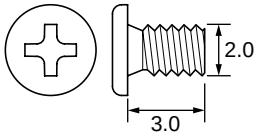


HARDWARE LIST (4/4)

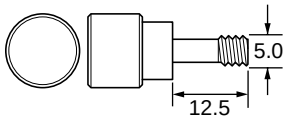
#61: M3.0 X 10.0
(Black)
7-682-549-09



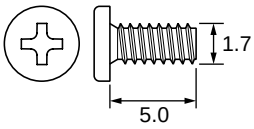
#62: M2.0 X 3.0
(Silver)
3-080-202-21



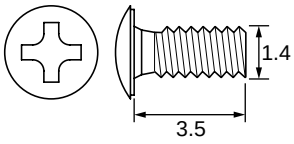
#63: M5.0 X 12.5
(Black)
3-060-811-21



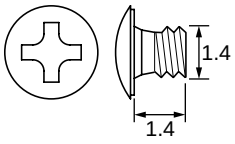
#64: M1.7 X 5.0 (Tapping)
(Silver)
2-666-551-21



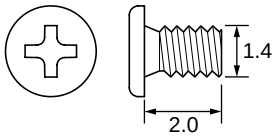
#65: M1.4 X 3.5
(Silver)
2-635-591-01



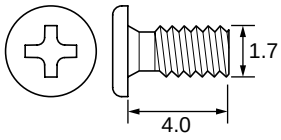
#66: M1.4 X 1.4
(Silver)
2-635-591-41



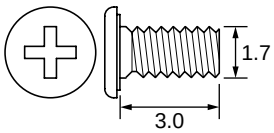
#67: M1.4 X 2.0
(Silver)
3-389-523-16



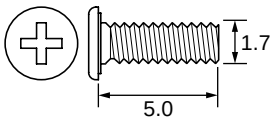
#68: M1.7 X 4.0
(Silver)
2-655-581-01



#69: M1.7 X 3.0
(Silver)
2-599-475-21



#70: M1.7 X 5.0
(Silver)
2-599-475-41



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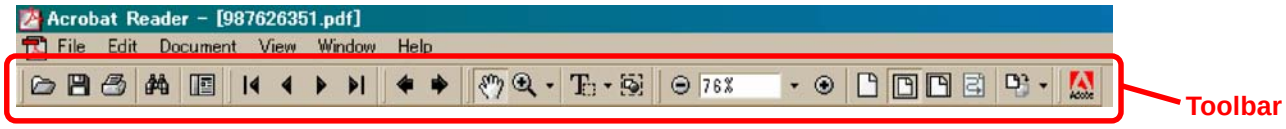
[Description of main button functions on toolbar of the Adobe Acrobat Reader Ver5.0 (for Windows)]



Printing a text

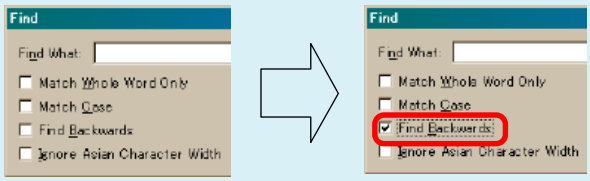
1. Click the Print button .
2. Specify a printer, print range, number of copies, and other options, and then click [OK].

Application of printing:
To set a range to be printed within a page, select the graphic selection tool and drag on the page to enclose a range to be printed, and then click the Print button.

Finding a text

1. Click the Find button .
2. Enter a character string to be found into a text box, and click the [Find]. (Specify the find options as necessary)

Application to the Service Manual:
To execute "find" from current page toward the previous pages, select the check box "Find Backward" and then click the "Find".



3. Open the find dialog box again, and click the [Find Again] and you can find the matched character strings displayed next. (Character strings entered previously are displayed as they are in the text box.)

Application to the Service Manual:
The parts on the drawing pages (block diagrams, circuit diagrams, printed circuit boards) and parts list pages in a text can be found using this find function. For example, find a Ref. No. of IC on the block diagram, and click the [Find Again] continuously, so that you can move to the Ref. No. of IC on the circuit diagram or printed circuit board diagram successively.
Note: The find function may not be applied to the Service Manual depending on the date of issue.

Switching a page

- To move to the first page, click the .
- To move to the last page, click the .
- To move to the previous page, click the .
- To move to the next page, click the .

Reversing the screens displayed once

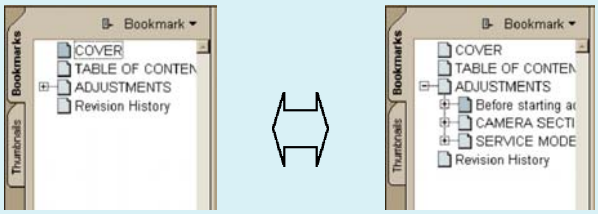
- To reverse the previous screens (operation) one by one, click the .
- To advance the reversed screens (operation) one by one, click the .

Application to the Service Manual:
This function allows you to go and back between circuit diagram and printed circuit board diagram, and accordingly it will be convenient for the voltage check.

Moving with link

1. Select either palm tool , zoom tool , text selection tool , or graphic selection tool .
2. Place the pointer in the position in a text where the link exists (such as a button on cover and the table of contents page, or blue characters on the removal flowchart page or drawing page), and the pointer will change to the forefinger form .
3. Then, click the link. (You will go to the link destination.)

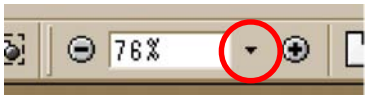
Moving with bookmark:
Click an item (text) on the bookmark pallet, and you can move to the link destination. Also, clicking can display the hidden items.
(To go back to original state, click)



Zooming or rotating the screen display

"Zoom in/out"

- Click the triangle button in the zoom control box to select the display magnification. Or, you may click or for zooming in or out.



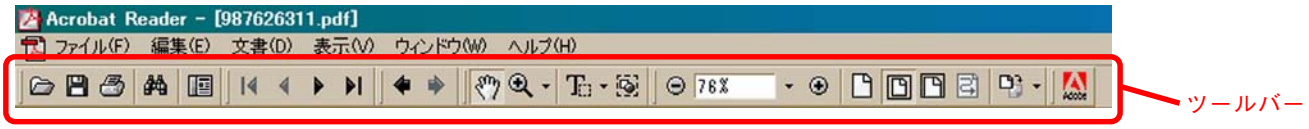
"Rotate"

- Click rotate tool , and the page then rotates 90 degrees each.

Application to the Service Manual:
The printed circuit board diagram you see now can be changed to the same direction as the set.

ENGLISH JAPANESE

【Adobe Acrobat Reader Ver 5.0（for Windows）ツールバー内にある主なボタンの機能説明】



文章を印刷する

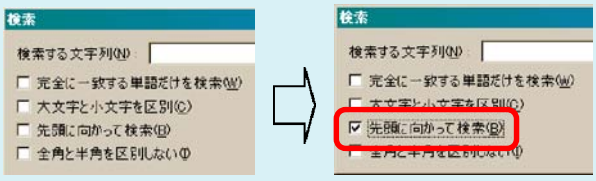
1. 印刷ボタンをクリックする。
2. プリンター、印刷範囲、印刷部数、および他のオプションを指定して「OK」をクリックする。

印刷の応用：
ページ内で印刷したい範囲を設定するには、グラフィック選択ツールを選択し、ページ上をドラッグして印刷したい範囲を囲んでから印刷ボタンをクリックする。

文章内を検索する

1. 検索ボタンをクリックする。
2. 検索したい文字列をテキストボックスに入力して「検索」をクリックする。（必要に応じて検索オプションを指定する）

サービスマニュアルへの応用：
現在のページから前ページに向かって検索する場合は「先頭に向かって検索」のチェックボックスを選択してから「検索」をクリックする。



3. 検索ダイアログボックスをもう一度開き、「次を検索」をクリックすると次に出てくる一致文字列を検索することができる。（前回入力した文字列が、テキストボックスにそのまま表示されている）

サービスマニュアルへの応用：
文章内にある図面ページ（ブロックダイヤグラム、回路図、プリント図）および部品表ページなどは、この検索機能を使って部品検索することができる。例えば、ブロックダイヤグラム上でICのRef. No.を検索し、「次を検索」を続けることによって回路図、プリント図上にあるICのRef. No.へ次々と移動する。
注意：発行年月日によって検索できない場合もあります。

ページを切り換える

- 最初のページに移動する場合、をクリックする。
- 最後のページに移動する場合、をクリックする。
- 前のページに移動する場合、をクリックする。
- 次のページに移動する場合、をクリックする。

一度表示した画面へ逆戻りする

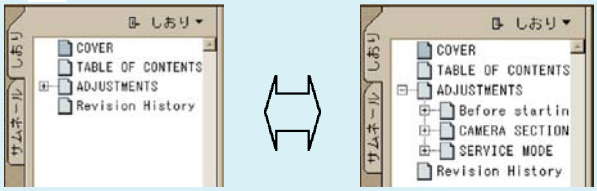
- 前の画面（操作）へ1つずつ逆戻りする場合、をクリックする。
- 戻した画面（操作）を1つずつ前に進める場合、をクリックする。

サービスマニュアルへの応用：
回路図とプリント図を行き来できるので電圧チェックに便利です。

リンクを使用して移動する

1. 手のひらツール、ズームツール、テキスト選択ツール、グラフィック選択ツールのいずれかを選択する。
2. 文章内のリンクのある場所（表紙および章目次ページのボタン、外し方のフローページ、図面ページでは文字が青色になっているところなど）にポインタを置くと、ポインタが人差し指の形「」に変わる。
3. そのままリンクをクリックする。（リンク先へ移動する）

しおりを利用して移動する：
しおりパレット上の項目（テキスト）をクリックするとリンク先へ移動することができる。また、「」をクリックすると隠れている項目を表示することができる。
（「」をクリックすると元に戻る）



画面の表示を拡大、縮小または回転させる

「拡大/縮小」

- 倍率ボックスの三角矢印ボタンをクリックし、表示倍率を選択する。または、をクリックしても使えます。

「回転」

- 回転ツールをクリックすると、ページが90度ずつ回転する。

サービスマニュアルへの応用：
見ているプリント図をセットと同じ向きに変えられます。

Revision History

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2006.12	Official Release	—	—
1.1	2007.03	Revised-1	• Revision of SPECIFICATIONS SERVICE NOTE, DISASSEMBLY, BLOCK DIAGRAMS, PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS, REPAIR PARTS LIST, ADJUSTMENT	Yes